AWS Change Acceleration 6-Point Framework and OCM Toolkit

AWS Prescriptive Guidance

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AWS Prescriptive Guidance: AWS Change Acceleration 6-Point Framework and OCM Toolkit

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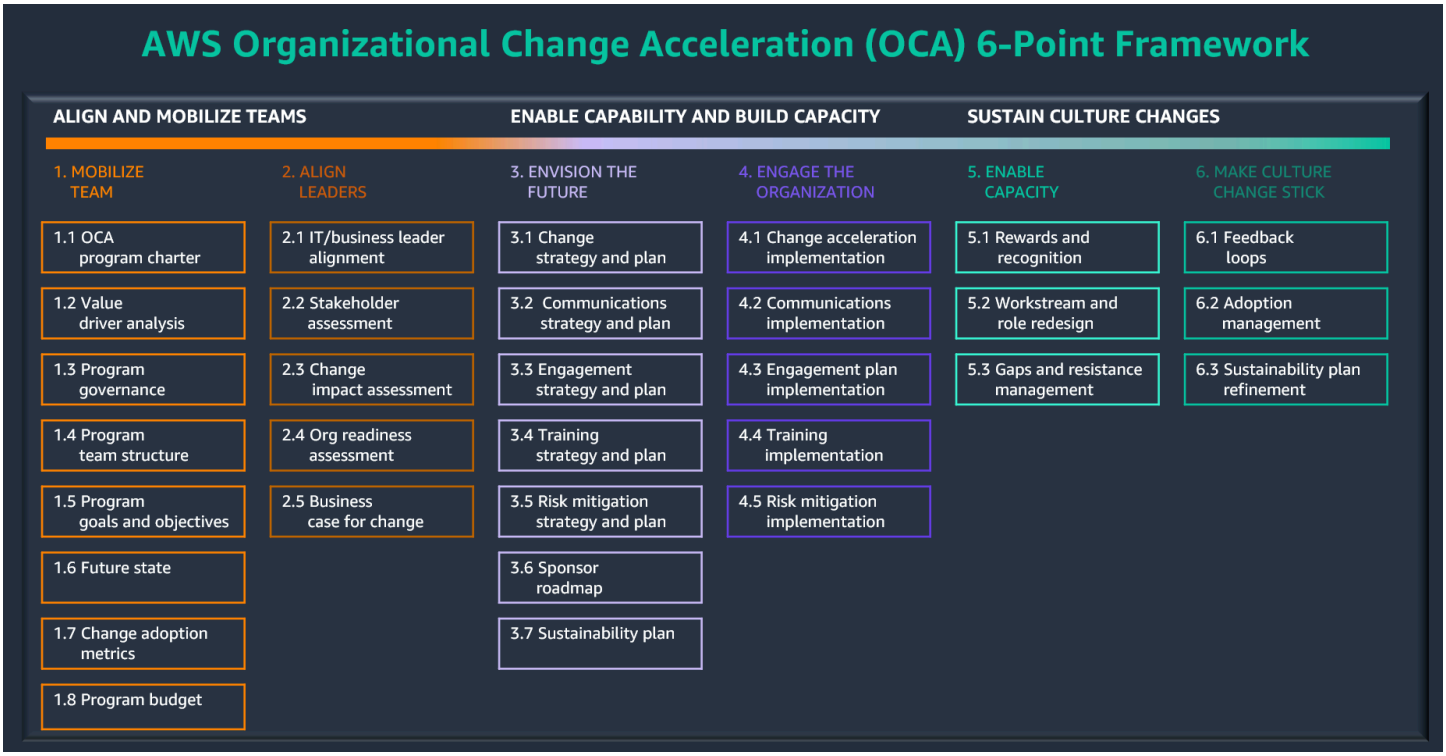
Cloud value realization occurs when leaders put as much focus on the people side of change as they do on technology. As enterprises embark on cloud transformation, there is a temptation to focus first on the technology without planning for the organizational effects of cloud transformation on culture, roles, skills, and leadership. Yet again and again, we find that proactive focus on organization alignment, leadership, people ability, and culture is the key to realizing the transformational value of cloud adoption.

The AWS Change Acceleration 6-Point Framework and Organizational Change Management Toolkit helps prioritize the steps that cloud leaders and their teams must get right to realize the desired outcomes of cloud adoption. The AWS Change Acceleration 6-Point Framework is a programmatic and evidence-based organizational change adoption framework. It includes a comprehensive set of templates, guidelines, and supporting artifacts, assessments, accelerators, and tools that are designed to accelerate adoption to the new ways of working when moving from the current state to a future state of cloud transformation.

The six points can be aligned to an agile sprint cadence, beginning with program kick-off through stakeholder alignment, business readiness, awareness building, and capability development, to create a sustainable long-term change. These six points are:

1. Mobilize Team
2. Align Leaders
3. Envision the Future
4. Engage the Organization
5. Enable Capacity
6. Make Culture Change Stick



Each point breaks down into specific pieces of actionable work, and examples are provided throughout this publication. The AWS change acceleration approach has been designed with a focus on return on investment (ROI), to accelerate your organization's adoption of AWS services and solutions, minimize the effects on performance, and shorten project completion times. Improving your company's ability to change and adapt is key to transformational levels of success. As AWS continues to innovate at a rapid pace each year, and as your organization quickly adopts those solutions and further innovates, business value is enhanced. These initial cloud successes lead to faster, more efficient, and more cost-effective adoption, and the cycle of migration and modernization is repeated.

The AWS Change Acceleration 6-Point Framework and Organizational Change Management Toolkit is intended to cover the full scope of people-related issues and challenges throughout the lifecycle of a cloud transformation, and can be applied to align with a broader implementation effort. This framework guides customer adoption of AWS technologies, processes, and new ways of working by

- Identifying, aligning, and mobilizing key leaders
- Assessing and mitigating the organizational impacts of cloud transformation
- Designing and driving organizational change acceleration, communications, training action plans, and leadership, sponsorship, and culture strategies and roadmaps

The remainder of this paper uses the term *change acceleration* to refer to *change acceleration and organizational change management*. In your organization, the term *organizational change management* (*OCM* for short) might be more familiar.

Overview

The value realization of the cloud, beyond cost savings, is measured by how well your business adapts to the new ways of working that cloud technology creates. Change acceleration delivers value in business productivity and agility for your customers. Using a programmatic and data-driven approach to change acceleration establishes an organization's cloud fluency and readiness to address the impacts of cloud across their enterprises. AWS change acceleration dives deep into the cultural implications of the cloud, receptivity to change, history of change successes and failures, communication patterns, organizational structure, the key role of executive sponsors, leadership commitment, detailed change impacts, and cross-functional alignment of IT and business stakeholders.

Identifying the case for change acceleration can be tricky, because deep-rooted history, cultural norms, and organization politics can sometimes be difficult to see. However, there are some clear indicators that change acceleration is necessary, including drastic scope changes, multi-year timelines, mergers, acquisitions, divestitures, and customer leadership changes. In all of these cases, there's a high likelihood of a strategy change, due to the sheer length of time or a change in priorities and organizational structures. Often these factors can cause a dramatic ripple effect and leave a company stalled in their cloud migration and modernization efforts. Even if you do not see a need for change acceleration today, it is important to be aware of these red flags and be ready to quickly respond when the time comes.

Cloud transformation creates widespread changes across business and technology functions. If these changes aren't managed effectively, they might slow down or derail your transformation efforts. Benchmarking data, best practices, and lessons learned indicate that enterprises that apply a programmatic end-to-end change process that is structured, integrated, and transparent at the onset of transformation initiatives achieve higher rates of success with their cloud migration and modernization journeys than those who don't. When you plan and deliver programmatic change acceleration at the onset of transformation initiatives, one shared reality is developed across the enterprise, because your workforce accepts, embraces, adopts, and owns these new ways of working faster, and with higher proficiency.

Managing organizational change is not a one-size-fits-all endeavor, so we recommend that you customize a change acceleration framework that best fits your enterprise's desired outcomes in cloud leadership, talent, training, communications, and culture. Identify, align, and mobilize a cross-functional cloud leadership team that includes business and IT leaders. Identify an active and visible executive sponsor. Define what success looks like early in the journey, and learn by

doing. Envision the future by assessing your organization's readiness for the cloud through impact assessments. Identify key risks, inter-dependencies, and barriers to transformation. Develop a change acceleration strategy and plan that addresses risks and takes advantage of strengths. This should include leadership action plans, talent engagement, training, and risk mitigation strategies. Develop a communication strategy to deliver the right messages at the right time to each stakeholder group. Engage the organization and enable it with new capacities to increase acceptance of the new ways of working, to facilitate learning new skills, and to accelerate adoption. Track clearly defined metrics and celebrate early wins. Establish a change coalition to leverage existing cultural levers that can help you generate momentum. Make changes persist by setting up continuous feedback mechanisms, rewards, and recognition programs.

Targeted business outcomes

Business outcomes are highly dependent on your organization, but can include the following:

- **Time savings:** Identify and mitigate organizational, political, cultural, or leadership blockers that stand in the way of starting or scaling the cloud journey.
- **Employee engagement and growth:** Create strategies for the workforce transformation to involve employees in the cloud journey, and to get them excited, prepared, and skilled in AWS technologies.
- **Reduced risk exposure:** Manage and mitigate risk while rewarding and recognizing desired new behaviors to reduce the risk of non-compliance as things rapidly change with cloud adoption.
- **Organizational adaptability:** Develop the ability to deliver more change at a faster pace, adopt quickly, and scale.
- **Transformation leadership alignment and mobilization:** Strengthen leadership capability, mobilize leaders to drive transformational change, and enable outcome-focused, cross-functional decision making.
- **Workforce transformation:** Create a high-value, agile, and adaptable workforce that can embrace change, innovation, and organizational agility to address changing customer and market demands (such as changes in buying patterns, changes in regulations, or remote versus on site working). Enable talent and modernize roles to attract, develop, and retain a digitally fluent, high-performing, and adaptable workforce that can autonomously drive key capabilities.
- **Talent enablement:** Modernize talent management strategies across leadership, learning, rewards, inclusion, performance management, career mobility, and hiring to ensure that the right people with the right skills are in the right roles at the right time, and are demonstrating new, cloud-fluent behaviors.

- **Culture evolution:** Assess, incrementally evolve, and codify organizational culture with digital transformation aspirations and best practices for agility, autonomy, clarity, and scalability.
- **Change adoption:** Use outputs from change impact assessments to define a strategy for adopting the new ways of working while building a change coalition network and digital acumen to effectively leverage the cloud to accelerate business outcomes.
- **Organizational alignment:** Establish ongoing partnerships among organizational structures, business operations, processes, talent, and culture to enable rapid adaptation to market conditions, and to improve your organization's ability to capitalize on new opportunities.

The sections in this overview break down the AWS Change Acceleration 6-Point Framework and Organizational Change Management Toolkit in a logical fashion so you can reference it throughout your cloud adoption journey. Each section focuses on one of the six points of the framework.

About the 6-Point Framework guides

This guide is part of a set of publications that cover the AWS Change Acceleration 6-Point Framework, which is a programmatic and evidence-based organizational change adoption framework.

The content set includes a comprehensive set of templates, guidelines, supporting artifacts, assessments, accelerators, and tools that are designed to accelerate cloud transformation. We recommend that you start with this overview to understand the framework and its six points, and then consult the following individual guides for detailed discussions of each point.

1. Mobilize Team
2. Align Leaders
3. Envision the Future
4. Engage the Organization
5. Enable Capacity
6. Make Culture Change Stick

For a comprehensive set of cloud transformation strategies, guidance, and resources, see Accelerating cloud transformation.

Point 1. Mobilize Team

Mobilize Team is designed to build a structure and to identify measures of success and governance around change acceleration efforts and activities. This area contains eight subpoints:

1.1 Develop change acceleration charter

1.2 Analyze value drivers

1.3 Establish governance

1.4 Establish project team structure

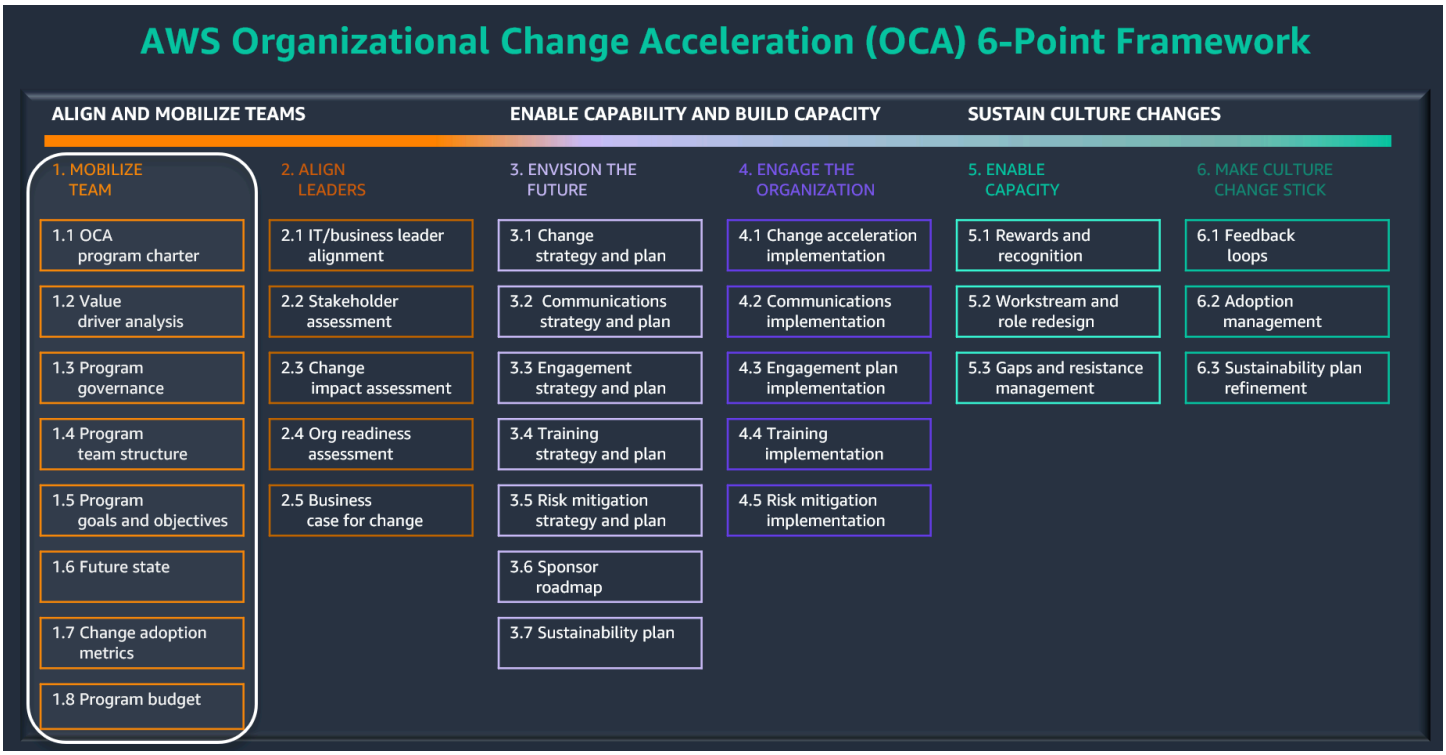
1.5 Define project goals and objectives

1.6 Establish future state

1.7 Define business metrics

1.8 Define the budget

This section provides a brief overview of Mobilize Team and its subpoints. For a detailed discussion, see the guide AWS Organizational Change Acceleration (OCA) 6-Point Framework – 1. Mobilize Team.



1.1 Develop change acceleration charter

What is it?

A formal *Change Acceleration Charter* document is intended to build leadership alignment and buy-in to the change acceleration scope of work from the onset of the cloud program. This document identifies the cloud program team's dependencies on other areas, as well as key stakeholders. The change acceleration charter includes:

- A review process for change acceleration deliverables
- A definition of stakeholder responsibilities related to change acceleration activities
- A definition of change acceleration metrics and reporting requirements

Why is it valuable?

The Change Acceleration Charter is purposeful, thoughtful, and structured. It delivers timely solutions and tactics to maximize speed, optimize adoption, and mitigate organizational risk. A cloud program inevitably includes risks that might cause issues or derailments. This document anticipates and addresses these issues proactively by assigning deliverables, stakeholder roles and responsibilities, metrics, and reporting.

When do you use it?

As the cloud program starts up, coordinate and gather input from various groups:

- Meet with program leaders to gather information about business case, scope, timeline, milestones, level of effort, and information about key stakeholder meetings.
- Meet with the executive sponsor to gather information about the cloud value vision and desired business outcomes, and to confirm the level of active and visible sponsorship.
- Meet with workstream leads to gather information about scope, timing of critical deliverables and events, and expectations for interaction with the change acceleration team.
- Meet with internal groups (as applicable) such as change management, corporate or strategic communications, employee engagement, human resources, and training (or learning and development) to understand the level of support they will dedicate to the cloud program, and any expectations for change acceleration reports that you will need to provide to them.

This input helps confirm the level of change acceleration support and involvement required. Scheduling a meeting to discuss these topics will help you establish initial relationships with stakeholders.

1.2 Analyze value drivers

What is it?

Value driver analysis is an important foundation for strategic planning and helps management sort through their operations to define critical strategic levers. This analysis presents an approach to increasing performance that will forge stronger links between operating performance measures and shareholder value creation. Value drivers can be categorized as growth drivers, efficiency drivers, or financial drivers. Companies tend to create paths to value creation by investing in growth opportunities, investing in operating efficiency, divesting value-destroying activities, and reducing capital costs.

Why is it valuable?

Oftentimes, organizations unintentionally reward managers for attaining performance measures that have little impact on value. To avoid this, organizations can identify key drivers of value creation and structure a performance measurement approach around them. Leaders can, in turn, focus their attention on activities that have the greatest impact on value.

When do you use it?

Use value driver analysis when you want to examine and define the specific paths to value creation by function and level within the organization. This will help managers focus their attention on factors that matter the most. Typically, managers have a solid knowledge of the variables that affect business performance, and they manage that list diligently. The problem is that the list of variables is often too long and might be prioritized against goals other than value creation. Value drivers should have a significant impact on value, and should be controllable.

- Value drivers that have a high impact on value and a high degree of management influence should be managed actively.
- Value drivers that have a high impact on value and a low degree of management influence should be reconfigured by changing the strategy.
- Value drivers that have a low impact on value and a high degree of management influence should be monitored.

- Value drivers that have a low impact on value and a low degree of management influence should be considered low priority.

1.3 Establish governance

What is it?

Governance secures integrated alignment with executives, key stakeholders, the cloud program team, and the change acceleration team. It also defines ownership, decision rights, issue management, and the escalation process for change acceleration activities.

Why is it valuable?

A program that establishes a clear structure and governance has a higher probability of success than one that doesn't establish structure or governance. This is because decisions and ownership around decision-making rights can often be a major factor in delaying cloud programs. Governance establishes decision-making authorities and can provide guidance around *two-way door decisions* (decisions that can be made quickly with low risk and can be easily reversed), and *one-way door decisions* (decisions that require more thought and contemplation, because they cannot be easy reversed).

When do you use it?

Use governance to enable clear decisive leadership and accountability of the change acceleration program, provide quality assurance and a path to escalate issues and risks, specify a decision rights framework for the program, align the workstream structure to the existing project, program, and organization-wide governance structure, and establish a cadence of meetings and scrum ceremonies that map to the rest of the program rhythm and reporting mechanisms.

1.4 Establish project team structure

What is it?

Project team structures power the cloud program. Cloud migrations and transformations require change acceleration expertise to address the non-technical aspects of the program. Additionally, many cloud programs determine that they will establish a Cloud Center of Excellence (CCoE) to lead their company through organizational and business transitions over the course of the migration effort or transformation. When this structure is in place, the change acceleration team,

which is within the CCoE, is responsible for identifying organizational changes, change impacts, role changes, communications, and training requirements, and for securing executive sponsorship.

Why is it valuable?

As with every other aspect of your program, staffing your change acceleration team with dedicated, accountable, experienced resources helps you invest in a smoother transition to the cloud. Delays and challenges in a company's cloud adoption journey are often caused by poor decision making, communication issues, or lack of cross-functional leadership alignment. Mitigating risk in these areas while propelling the culture forward can make a significant difference in speed to adoption.

When do you use it?

Staff your team with key roles that focus on change acceleration at the beginning of the program. Evaluate staffing levels on an ongoing basis to determine whether they should be scaled up or down in connection with the program's scope and timeline. Here are some example key roles and responsibilities in the project team:

- People transformation executive advisor: Engages with the executive program sponsor and other IT and business leaders who are responsible for the migration or transformation (for example, CIO, CTO, cloud program director, CCoE leader).
- Change acceleration lead: Manages all aspects of the change acceleration team, deliverables, and timelines at the program level. Works with customer workstream counterpart, program manager, cloud program director, CCoE leader, and other program workstream leads.
- Executive change acceleration oversight and program oversight roles: Collaborate at all levels to drive project strategy and successful implementation with responsibility for quality assurance.
- Organizational readiness and communications lead: Establishes the communication strategy and implements the communication plan; works with the customer communications lead and other stakeholders such as business leads and application owners, as required.
- Training lead: Designs and develops the training strategy and plan. Works in collaboration with the customer learning and development or training lead to determine how to best advertise training, target users for training courses, handle training logistics, and roll out training within the customer's environment.
- Specialty subject matter experts (as needed): Focus on variable aspects of the program such as culture analysis, diversity and inclusion, and strategic workforce planning.

These roles set the foundation of the change acceleration team, and additional resources can be added to the team as the scope of the cloud migration or transformation increases, changes, or expands globally.

1.5 Define project goals and objectives

What is it?

Cloud migration or transformation goals and objectives originate in the discovery phase and are refined during the Migration Readiness Assessment (MRA) and the Migration Readiness Planning (MRP) efforts. The change acceleration team aligns its activities against those goals and objectives, and embeds them in the strategy. Goals and objectives are based on the business case, customer interviews, migration team meetings, and MRA and MRP findings.

Why is it valuable?

Including the change acceleration team in assessment and planning sessions builds alignment among the people, process, and technology aspects of migrating and modernizing applications and workloads on AWS. The team can additionally help focus on the design and implementation of the CCoE, the transition of a hybrid operations model to CCoE, and the creation of new processes and procedures as the journey to the cloud evolves.

When do you use it?

Use project goals and objectives to motivate, monitor, and measure progress on the cloud adoption journey. First understand which goals have already been established. Then work to establish new goals that are focused and simple. If the goal isn't easily understood, it's probably not the right goal. Build metrics and measurement mechanisms to update business leaders on the progress against these goals, and forecast business scenarios based on new implications. Consider the need to meet tactical targets and to manage the business strategically. Consider using **SMART** criteria for goals:

- S – Specific; has an observable outcome
- M – Measurable; you can quantify or indicate progress on the outcome
- A – Achievable; the outcome is feasible
- R – Realistic; aligns with or supports other goals or strategic initiatives
- T – Time-bound; has a target date

1.6 Establish future state

What is it?

A cloud migration or transformation future state identifies the vision and potential value that can be realized from the cloud solution. Future state is derived from organizational assessment outputs. It represents a visual alignment of your organization's culture, structure, people, technology, and process with the new, cloud-centric ways of working.

When you model the future state, consider describing changes to the following components of the AWS Cloud Adoption Framework (AWS CAF) people perspective:

- Culture evolution: Evaluate, incrementally evolve, and codify organizational culture with digital transformation aspirations.
- Transformational leadership: Strengthen leadership capability and mobilize leaders to drive transformational change.
- Cloud fluency: Build digital acumen to confidently and effectively leverage the cloud to accelerate business outcomes.
- Workforce transformation: Enable talent and modernize roles to attract, develop, and retain a digitally fluent and high-performing workforce.
- Change acceleration: Accelerate the adoption of the new ways of working by applying a programmatic change acceleration framework.
- Organizational design: Assess and evolve organizational design for alignment with the new cloud ways of working.
- Organizational alignment: Establish ongoing partnership between organizational structures, business operations, talent, and culture.

Why is it valuable?

The future state informs the change acceleration approach you will take to transform your people, skills, and organization. Therefore, it requires some detailed analysis to be beneficial. Analysis techniques that can guide the definition of the future state include decision analysis, process analysis, business capability analysis, feature decomposition, prototyping, and product road mapping. Keep in mind that the characteristics of the application portfolio will affect the flexibility of the future state operating model.

When do you use it?

Use a future state approach to intentionally change the way your company works, and to determine how people drive the business strategy. This might result in drastic changes such as outsourcing, insourcing, or hiring a managed service to deliver aspects of your business. To make these types of decisions around the future state, involve participants who have diverse experiences or come from different professions to encourage innovation. Many companies benefit from identifying a network of change agents that represent a footprint of the impacted user base (functions, geographies, roles, and so on) of the cloud migration or transformation. A change agent is someone who is knowledgeable, authentic, and credible, and has influence, with or without formal authority, within their network. Additionally, think about organizational alignment and establish ongoing partnerships within organizational structures, business operations, talent, and culture. The future state is likely to evolve with your cloud adoption journey and needs to stay flexible. Therefore, define one or more interim states that can reasonably be achieved during the transition, and assess progress towards the desired future state on a regular (quarterly or bi-annual) basis.

1.7 Define business metrics

What is it?

Change acceleration metrics are performance measures that monitor and track how the people in your organization are transitioning through the required process and technology changes, migrations, and adoption of the cloud. Metrics might be both qualitative and quantitative, and can include both lagging indicators and leading indicators.

We recommend that you establish a change acceleration scorecard that tracks both qualitative measures (such as employee perceptions of the change and commitment to change) and quantitative measures (such as percentage of employees who attended scheduled training or heard about the change from their direct manager).

The change acceleration scorecard can focus on:

- Shared vision and strategy – Awareness of the program, messaging effectiveness, alignment of strategy and implementation, and level of impact of the program
- Sponsor engagement and alignment – Commitment, readiness, and prioritization of the program
- Business user engagement, awareness of resources, level of understanding of how the changes affect day-to-day work
- Skill competency and development – Training effectiveness, certifications achieved, and readiness to perform job tasks in the cloud

Why is it valuable?

In some projects, the technical, financial, and operational aspects of implementation or migration are closely tracked and monitored, whereas people-related issues are ignored or not diagnosed until they become problems. However, the high failure rate that characterizes project implementations and stalled migrations is tied more closely to the inability to manage people through change than to operational or financial factors. The following guiding principles are critical to migration success and business adoption:

- Leadership is informed and supportive of cloud migration implementation efforts.
- A clear, concise, well-articulated vision of the future and clarity around why it is important to change is understood.
- Stakeholders at all levels understand the change at the personal level. They are aware of what it will take to get there, and they take ownership of the change.
- All employees who are affected by the changes are fully aware, prepared, and receive timely and relevant training.
- Program information and support resources are available before and after migration.

These guiding principles, implemented by a robust change acceleration plan, help drive business user adoption and program success.

When do you use it?

Early in the cloud migration process it is important to confirm and establish change acceleration metrics that the program will track throughout its lifecycle. Measurements that can be used to track metrics include, but aren't limited to, surveys, email receipts, email link usage, webpage views or clicks, evaluations, proficiency metrics, one-on-one meetings, participation in major program events, change agent feedback, and net promoter scores.

1.8 Define the budget

What is it?

A budget is the financial plan for a period of the program, such as one year, or the life of the cloud transformation. For the change acceleration workstream, understanding the costs related to supporting the people and organizational dimensions of a cloud migration or transformation is key to controlling and implementing tasks and resources, and mitigating risk. Although the budget can vary across change acceleration projects, we recommend that you spend some portion

of your budget on dedicated change management resources. There is a relationship between sufficient resources and change management effectiveness. For more information, see point 5 in Best Practices in Change Management on the Prosci website. (Prosci is a research firm that focuses on change management best practices.)

Budget requirements can be categorized as follows:

- Change acceleration team resources (for example, change management, training, communications, technical writers, instructional designers)
- Material development (for example, communications, internal marketing, translations, printed materials)
- Skills and knowledge (for example, specialty training, instructor-led training, game days, workshops, simulations, certifications)
- Travel and events (for example, organizational readiness assessments, local site visits, instructor-led training, buzz events that drive interest and excitement)
- Software (for example, learning management systems, licenses for instructional design, enrollment fees, reporting fees, webinar conferencing tools)
- Hardware (for example, laptop leases or rentals for training)
- Facilities (for example, venue fees for offsite training, conference rooms, projectors, A/V equipment)

For budget-constrained organizations, many training and events that were traditionally conducted in person in a physical environment can also be delivered virtually and asynchronously to contain costs and provide more inclusivity to global team members.

Why is it valuable?

The change acceleration investment should be directly aligned with the magnitude of the change and the scope of anticipated activities. Understanding the scope gives you better visibility into forecasting and estimating costs.

Budgetary considerations must be given to change acceleration, organizational change management, organizational design, culture, communications, and training resources. Also consider expenses related to the development, deployment, and delivery of training and communication materials, software, hardware, and travel-related expenses.

When do you use it?

To support the creation of a robust budget, most change acceleration activities can be anticipated and planned in advance, with inputs from the Migration Readiness Assessment (MRA). Unplanned activities can surface throughout the cloud migration effort. These might require further investigation and assessment, and will require approval by the leadership team.

Point 2. Align Leaders

Align Leaders is designed to identify, onboard, and prepare key stakeholders and target direct and indirect users of the cloud program, and mitigate the impacts associated with the journey to the cloud in a methodical fashion. It contains five subpoints:

2.1 Align leadership

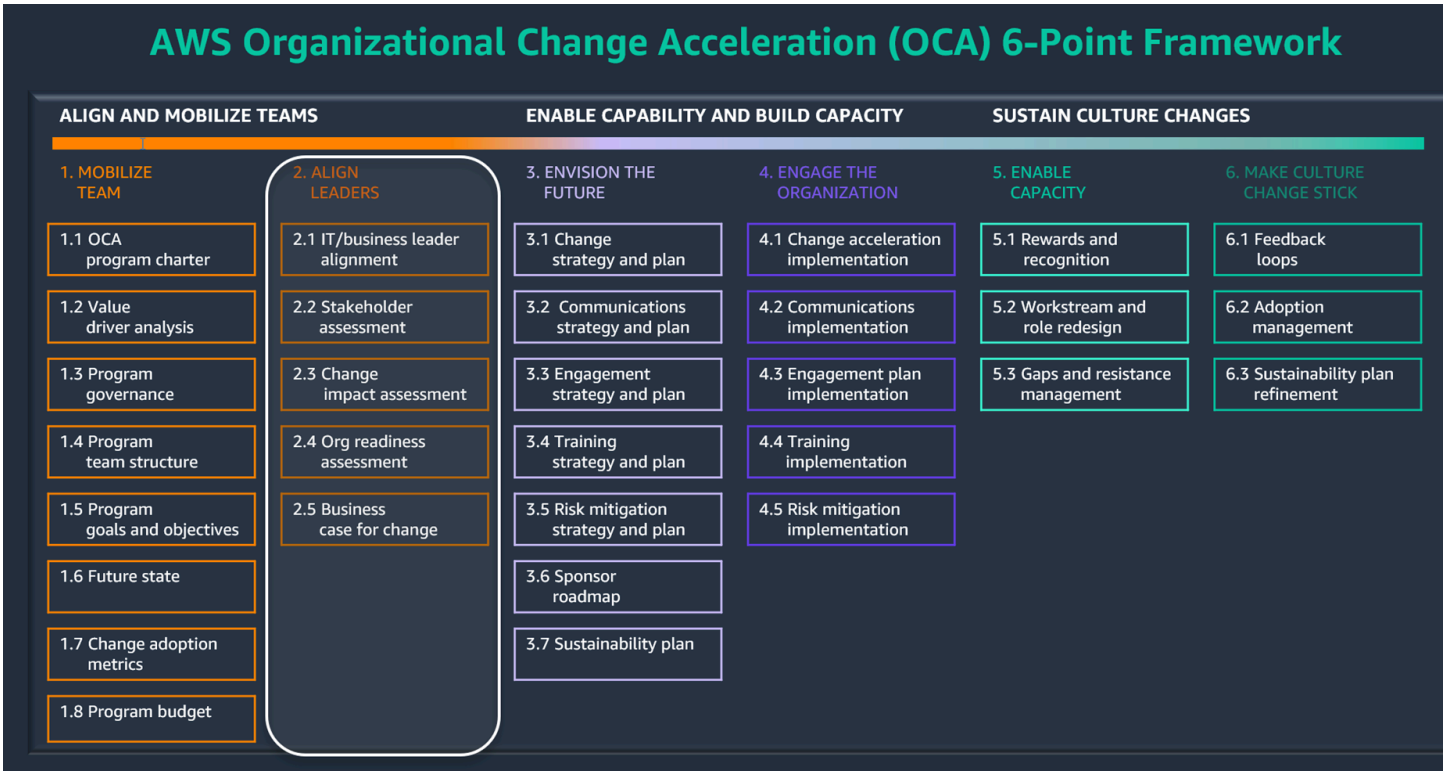
2.2 Assess stakeholders

2.3 Assess the impact of change

2.4 Assess organizational readiness

2.5 Create a case for change

This section provides a brief overview of Align Leaders and its subpoints. For a detailed discussion, see the guide AWS Organizational Change Acceleration (OCA) 6-Point Framework – 2. Align Leaders.



2.1 Align leadership

What is it?

Leadership alignment is the process of securing engagement and support of key global and regional/local business and IT stakeholders to drive the cloud transformation and transition to the new future state. If you're using a CCoE, you should periodically evaluate whether it's organized for functional optimization, and determine when it needs to expand, grow, and change in support of the broader cloud transformation objectives.

Sample leadership alignment activities include stakeholder management and alignment planning, leadership action planning, and participation in key stakeholder updates as needed. Generally, when managers and employees see their leaders support an initiative, they will prioritize it as well.

Why is it valuable?

Leadership alignment builds sustained understanding of the initiative and commitment to it. These, in turn, enable prioritization of the cloud transformation objectives, delivery plans, and impacts. This process identifies areas where leaders are or aren't aligned around the strategic objectives and the change implications of those objectives, and focuses on raising the leadership team's awareness, understanding, and commitment to the change.

Leaders are rarely on the same page consistently, especially with the new initiatives and possibilities around cloud transformation. We recommend that you address any concerns instead of ignoring them. By focusing on the underlying rationale for the concern, listening with empathy, and addressing or correcting concerns where possible, the team will win both credibility and goodwill with the leaders.

When do you use it?

To succeed in leadership alignment, identify, onboard, and prepare key stakeholders and leaders early in the project. To get to the root of leadership alignment, use a data-driven approach for gathering information. For example, interviewing key stakeholders and asking the same set of 7-10 questions provides a baseline of alignment across the board, and shows where the change team needs to focus attention. To continue building leadership alignment throughout the program, engage leaders in a way that highlights and spotlights their support, create leadership action plans, and establish a cadence for review meetings (for example, monthly or quarterly).

2.2 Assess stakeholders

What is it?

Stakeholder assessment is the first stage of managing stakeholders to identify and understand their span of control, level of influence, and disposition toward the cloud migration or transformation effort.

A stakeholder assessment identifies and captures information about the people who will be affected by the cloud program. This assessment can be used throughout the cloud migration or transformation journey to:

- Identify internal and external people who are affected by the change
- Monitor stakeholders' readiness to undertake the cloud migration or transformation as well as any challenges or risks to their participation.
- Support stakeholders throughout the cloud program
- Identify change agents who will champion or advocate the cloud program
- Understand the breadth and impact of the cloud program on the organization

When you work with stakeholders, ask for guidance in segmenting and targeting their audiences, preferred communication channels and key events, and their points of contact within the organization.

Why is it valuable?

By understanding stakeholder expectations, the change acceleration team can more effectively anticipate likely reactions, capitalize on positive reactions, and avoid or address negative reactions. Additionally, this assessment highlights perception gaps between executive leadership, program leadership, and implementation teams. The methodical approach to assessing stakeholders consistently gives the change acceleration team a source of data that can be used to detect the level of acceptance, perception, and general attitude toward the cloud program. The stakeholders should include cross-functional leaders of teams that are affected by the change and that represent a footprint of the impacted organization in IT, business, finance, and HR. Stakeholders should also include, as applicable, leaders across organizational characteristics and culture, regional and global segments, centralized and decentralized segments, and language/translation requirements.

You can use the insights gained and the output of a stakeholder assessment to build communication plans, training plans, performance metrics, a network of change agents, and many more artifacts that last throughout the lifetime of the program. The assessment additionally serves as a relationship-building opportunity and gives the stakeholders named contacts on the cloud team.

When do you use it?

The stakeholder assessment should be conducted early to inform the case for change and to support initial organizational readiness, communication, and training plans. Additionally, the assessment should be regularly reviewed and updated throughout the cloud program to reflect changes in the project, scope, impacts, and stakeholder turnover (leavers and joiners). On a routine basis, involve stakeholders in the ongoing management of the program.

Think of ways in which your team can involve stakeholders in program events. Also consider opportunities for stakeholders to involve the cloud program in their own events. As more employees become familiar with the cloud program through their own leadership and through familiar communication channels, the more natural the transition to the cloud will be. As stakeholder engagement and interest in the cloud program increases, the employees who report to that stakeholder will naturally follow in engagement, participation, and sentiment toward the journey.

2.3 Assess the impact of change

What is it?

A change impact assessment looks at the macro effects of the change and reports on the various skills, processes, performance management, and technology outcomes for each stakeholder group. It is necessary to identify and capture significant differences between the current state and the desired future state. Measuring the degree to which cloud changes will affect an organization is critical to properly scoping the interventions of the change acceleration program. Typical changes include redesigned processes, new technologies, new organizational structures, new roles and responsibilities, and new metrics and reporting mechanisms.

Why is it valuable?

When stakeholder groups are strongly affected by changes, send awareness communications to both users and their management. The same is true if the stakeholder group is affected to a lesser

degree, but the type of change will be perceived as negative or will lead to an increased workload for that stakeholder group.

Assessing and documenting change impacts help customers understand the changes at lower levels of granularity, such as process area, subprocess area, technology or application level, stakeholder group impacts, and role impacts. As a result, you can use the change impact analysis to determine the appropriate steps to incorporate into a change acceleration plan, communication plan, or training plan. Additionally, you can use this analysis as a tool for identifying stakeholders who are tangentially tied to cloud adoption and success, and should be included in various channels of communication, governance structures, decision points, policy reviews, and so on. You can analytically and methodically stack change impacts against one another to contextualize the changes and to understand whether any stakeholder groups will be overwhelmed by the amount of change. If so, you can modify your plans to space out deployments accordingly.

Organizations sometimes find it difficult to anticipate the change impacts that their employees and stakeholders will experience, because of the newness of cloud technologies. Additionally, due to the speed of cloud changes and the introduction of new services every year, new change impacts will be created and experienced continuously. As cloud adoption expands throughout an organization, the change impacts across stakeholder groups, lines of business, regions, and so on will also change.

When do you use it?

Use change impact assessments throughout the program to document when and how stakeholder groups become involved, and formulate specific plans to address those impacts. Here are some practical examples to consider:

- For managers, document when employees are likely to need training, when employees might need to have cloud-specific performance metrics incorporated into other annual performance plans, and when speaking points might be required.
- For HR stakeholders, document when key training events might be needed, when hiring plans might be required, how these changes might affect recruiting plans, when skill development opportunities become evident, when organizational design changes might be needed, and whether a compensation assessment should be conducted to market test the value of cloud talent and skills.
- For working council or labor union stakeholders, document risks and concerns that might be raised and how best to address them, and if a regular meeting cadence should be established to improve transparency in communications.

- For finance stakeholders, document when a budget might be required for headcount and training activities, how budget processes and cycles might be affected by the cloud journey, and how the transition from on premises to the cloud might change the way fixed and variable costs are treated in the company.
  - Consider taking a FinOps view and identify how IT stakeholders, business stakeholders, finance stakeholders, and developers might need to work differently as a result of cloud transformation. The adoption of FinOps capabilities is likely to impact the processes, tools, roles, and responsibilities, and these capabilities can be used as a data source for identifying change impacts. These impacts could lead to establishing communications, training, and mindset or culture shifts around FinOps, and how the business manages, measures, and views the value of cloud investment.

2.4 Assess organizational readiness

What is it?

An organizational readiness assessment is used to understand the customer organization's propensity, ability, and desire to adapt to change. The organizational readiness assessment is then used to identify strengths, barriers, and challenges to narrowing any gaps in readiness. Typically, a survey format is used to conduct an organizational readiness assessment.

Why is it valuable?

It is important to understand the organization's current culture and organizational structure as well as its desired state. These are instrumental in identifying opportunities and barriers that must be addressed for the change effort to move forward effectively, measuring where the cloud transformation effort stands in regard to accepting change, and mitigating risk by using action plans that support the overall objectives of the change effort. Sharing results with participants shows progression, empathy, and program velocity.

When do you use it?

Implement an organizational readiness assessment at a key milestone such as a pilot application deployment to get an initial gauge of preparedness. This initial assessment can serve as a mechanism to improve the change acceleration plan and timing of other interventions. As a result of an organization readiness assessment and findings, it might be necessary to do the following:

- Review the strategic vision and business case for the program.

- Obtain additional sponsorship for the program.
- Expand ownership of the program to the cross-functional leaders and give them actions to communicate expectations to their teams.
- Invest in additional communications and training.
- Prioritize skill building so employees have an opportunity to improve their cloud acumen and achieve certifications.

2.5 Create a case for change

What is it?

A case for change is a message and document that ties the cloud transformation to the rationale for changing. Ideally, it is supported by a strong business case and used to consistently communicate the vision in a way that generates commitment to cloud transformation from stakeholders. It can be tailored and expanded to communicate messages that are companywide or function-specific, and to explain the benefits to IT, business, finance, customers, and employees.

When you create a case for change, keep some basic criteria in mind. This document should communicate the message in simple, clear terms that even those new or unfamiliar to the cloud program can comprehend. It should explain why the change is necessary by describing the current state, and specify the consequences of beginning the cloud transformation at this time or delaying it. If applicable, the case for change should be aligned with other initiatives that improve business results, to capture additional ways in which employees might participate in the cloud journey. The case for change message should be memorable or even metaphorical in describing the future state so it can be remembered easily. The case for change should sincerely communicate the personal convictions of the leadership team in voice, tone, feeling, and word choice, and might explain what individuals must personally do to support its realization. The case for change message should also be brief—ideally, you should be able to communicate it in a one-page document or in a short, 5-minute presentation that can be included in other communications and events.

Why is it valuable?

Leaders need to effect changes that will enable their organization to succeed in current and future markets. Employees might be resistant to change if they don't believe in what leaders are asking them to achieve. There is a big difference in performance between someone who wants to change and someone who changes because they have to. A solid and well-communicated case for change helps people commit to the cloud transformation journey out of their own volition.

When do you use it?

Create a case for change after you conduct a stakeholder assessment. The case of change from leaders articulates the benefits of the cloud transformation clearly and truthfully to the influencers involved. Because you are asking specifically about benefits and rationale for the cloud journey in the stakeholder assessment, the case for change will begin to write itself and give a holistic picture that explains the change and how it will help the business. The case for change should also explain the consequences of not making the cloud journey, how staying on premises will derail other strategic priorities, and any cost and talent implications.

Utilize the case for change throughout various communications. For example, launch it as a one-pager and review it in employee all-hands meetings. Then shift its voice to focus on how the case for change benefits specific audiences in a given meeting or training class. If you start all major meetings and cloud transformation events with the case for change, employees will become very familiar with it, and will start to understand it at a role-based level. When employees can articulate the case for change to others, the message will become part of the culture and will begin to transform the organization's journey to the cloud from both bottom-up and top-down directions. When you're presenting the case for change, ask questions and get the audience involved in a two-way dialogue. This can lead to unanticipated engagements or involvements, and additional connections between the employees and their attitudes toward the cloud journey.

Point 3. Envision the Future

Envision the Future is designed to create a change acceleration strategy and plan to communicate, train, and engage the employees of the organization in their cloud adoption journey. It contains seven subpoints:

3.1 Create change acceleration strategy and plan

3.2 Create communication strategy and plan

3.3 Create engagement strategy and plan

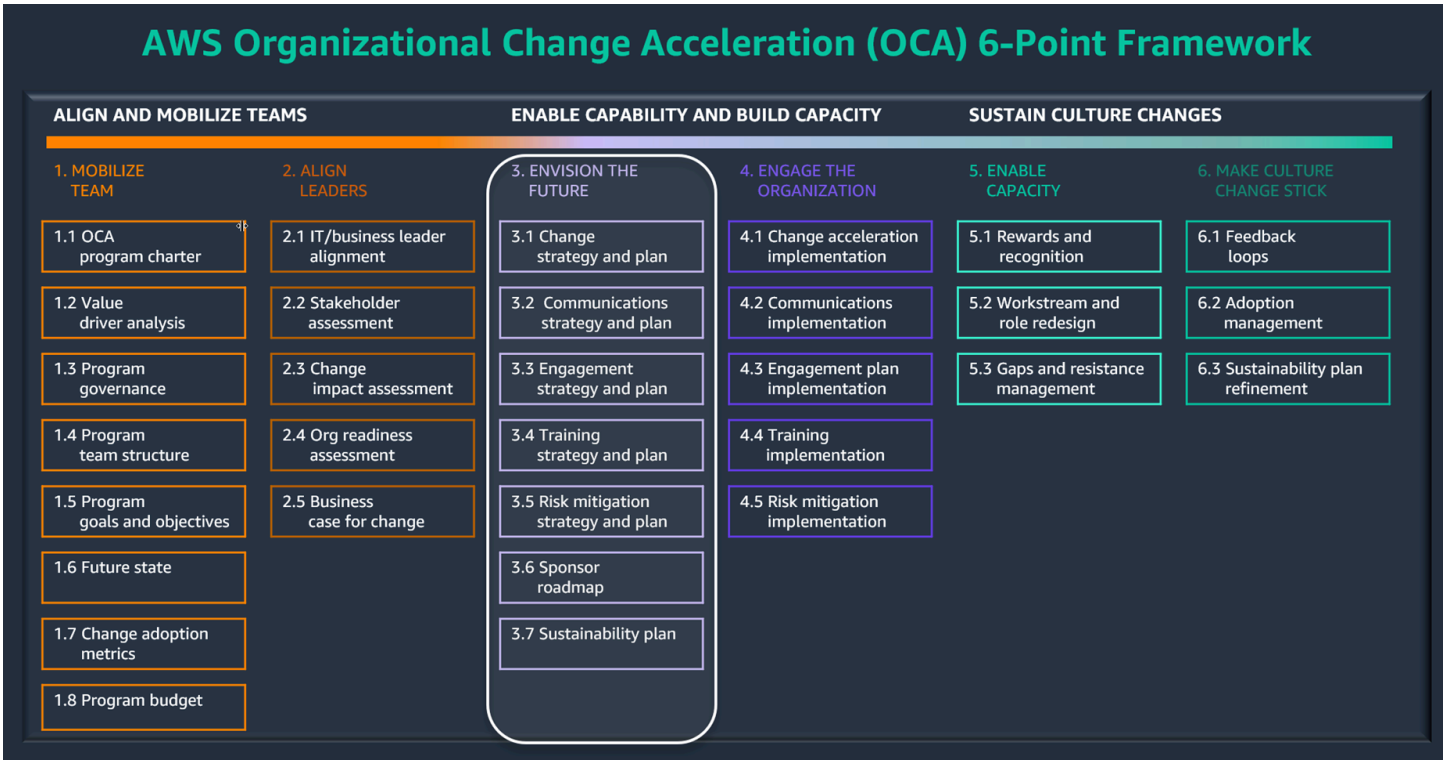
3.4 Create training strategy and plan

3.5 Create risk mitigation strategy and plan

3.6 Develop sponsor roadmap

3.7 Develop sustainability plan

This section provides a brief overview of Envision the Future and its subpoints. For a detailed discussion, see the guide AWS Organizational Change Acceleration (OCA) 6-Point Framework – 3. Envision the Future.



3.1 Create change acceleration strategy and plan

What is it?

A change acceleration strategy and plan provide a thoughtful, structured approach to delivering the right change tactics to the right people at the right time throughout the course of the cloud transformation. These serve as a framework that outlines a comprehensive approach to ensure that changes introduced to the organization as a result of the cloud transformation journey are accepted by leaders, employees, and other stakeholders with minimal disruption and maximum results. The plan provides a systematic mechanism for adjusting the application of tools, technologies, processes, or skills during a project or initiative. It describes the specific ways in which the organization will address such changes in the way it operates its business, technology, supply chain, organizational structure, or project scope. The strategy provides direction and results in informed decision making throughout the cloud transformation process.

Why is it valuable?

New systems and strategies can be highly disruptive to an organization. A well-formulated strategy describes how the project or change will affect the organization. To institute an organizational change management strategy effectively, stakeholders must create a plan for how to recognize when a change is needed, how to approve changes, and how to monitor changes to make sure that they have produced the desired effect.

Having a change acceleration strategy can help ensure that your transition to the desired future state goes smoothly. It can help minimize risk, performance issues, business disruptions, and incremental costs. It can help ensure that business continuity and service levels to customers are maintained. It can secure leadership alignment, and help ensure that all affected audiences are accounted for and prepared for the change. It can be utilized to increase stakeholder awareness, engagement, and understanding, and foster cultural transformation to promote collaboration and new ways of working. Finally, this strategy can be valuable in teaching the organization how to adopt and sustain the change to meet objectives and position itself for ongoing success.

When do you use it?

The change acceleration strategy should be created at the onset of the program, and the change acceleration plan should be created, reviewed, and updated at key milestones, phases, releases, or epics within the program. Organizational change acceleration is a process that requires close collaboration among teams and employees. This strategy and the subsequent plans require you

to develop and maintain effective partnerships among the human resources team, the cloud transformation team, executive sponsors, leadership, external vendors, and AWS Partners.

3.2 Create communication strategy and plan

What is it?

A communication strategy and plan provide a thoughtful, structured approach to delivering the right messages to the right people at the right time throughout the course of your cloud transformation. Communication from executive leaders is key to reinforcing the value and benefits of cloud transformation, and input from cloud project leaders, cloud change leaders and agents, the internal communications team, and human resources is critical to the development of the communication strategy and plan.

A communication strategy is a document that expresses the goals and methods of an organization's outreach and communications activities. A communication plan includes the detailed information about communications activities that address the strategies and achieve the objectives listed earlier. The plan describes each activity and includes information such as the delivery date, intended audience, detailed message, media type, creator, approver, and messenger. The communication strategy is typically updated infrequently, whereas the communication plan is updated on a frequent (typically weekly) basis.

Why is it valuable?

As your cloud transformation evolves, your communications teams must ensure that messaging is solidified and ready to be deployed throughout your transition to the cloud. An effective communication strategy and plan account for all necessary activities. This visibility makes it easier to understand how the cloud transformation story unfolds for the audience groups and helps you set deadlines for the work effort.

Communications promote cloud transformation and change acceleration awareness, which is the first step in getting a group of people to embrace new ways of working. Communications also cover the cultural aspects of the change and provide the answer to the question "What’s in it for me?". Furthermore, communications motivate future state and transitional state behavior. Setting a communication cadence reduces uncertainty and minimizes resistance to, and risk of rejection of, changes. A communications strategy gives key stakeholders the ability to drive awareness, understanding, and commitment across the cloud transformation project.

When do you use it?

In the planning phases, developing a communication strategy and plan is important, and how well you implement these could be the determining factor in how well the transition is received and behaviors adopted by your organization. Communication strategy and planning efforts start at the beginning of your cloud transformation project—typically during the migration readiness assessment. During this phase, gaps, change impacts, and teams and employees who are affected by the migration are identified. When you build your communications strategy, follow the communication process within your organization to best architect cloud messaging and activities.

3.3 Create engagement strategy and plan

What is it?

The engagement strategy and plan outline a systematic approach that describes specific ways in which an individual, stakeholder group, or organization will address changes brought forth by the cloud transformation. The intent of the engagement plan is to keep all key stakeholders committed to and focused on the desired business results of the cloud transformation. Identifying stakeholders and engaging them appropriately throughout the change process is critical to the success of the project. The strategy and plan should include input from the cloud project leader, change acceleration Leader, training leader, members of the readiness assessment team, internal training department, and human resources.

Why is it valuable?

The engagement strategy and plan heighten the involvement within and outside the cloud transformation team. It ensures that the right people receive the right information, so they can participate at the right time and in the right way. It works as a forcing function to proactively manage the pace and amount of change that each stakeholder group must undergo at a specific project milestone to avoid overload. By creating an engagement strategy and plan, you actively involve stakeholders, which might help further identify, manage, and avoid potential roadblocks. The resulting additional organizational commitment and capability for cloud transformation change further maximize the potential for a successful transition to cloud adoption.

When do you use it?

Use an engagement strategy and plan after you complete your preliminary work of assessing stakeholders, creating a change acceleration strategy and plan, and creating a communication strategy and plan. These documents can serve as a way to drive ongoing support and to benefit from the influence of stakeholders.

3.4 Create training strategy and plan

What is it?

A training strategy and plan identify the training that has to be delivered, and the process for developing and delivering the training program. These documents help users make the connections between the information they received from the communications team and the way they will work in the future to perform their roles in a cloud-transformed future state. To deliver training that meets the requirements of your cloud team, it's essential to create a training program that identifies training needs, outlines training to support those needs, and develops and delivers the training. The training strategy outlines the approach and process that will be followed to create and implement the cloud migration or modernization training program. It includes a learning needs assessment, a high-level approach to develop and implement the training program, and an overview of the development process for training materials.

A training strategy is a document that expresses the goals and methods of an organization's learning and enablement activities. A training plan includes the detailed information about training activities that will address the strategies and achieve the objectives of cloud migration, modernization, or transformation. The plan describes each training artifact and event, and specifies the delivery date, intended audience, detailed message, training format, creator, approver, and instructor for each event. The training strategy is typically updated infrequently, whereas the training plan is updated on a frequent (typically monthly) basis.

An AWS Learning Needs Analysis is an adaptive, role-based self-assessment survey that covers business roles and key technical functional areas. Role-based skills are scored, and a summary report shows organizational performance and skills gaps. Skills gaps are addressed with a mix of classroom and digital offerings, and certification recommendations. Using this assessment can provide a foundational first step in developing the training strategy and plan.

Beyond AWS technical skills, other competencies, new ways of working, process-related training, and methodology training might have to be part of your holistic training strategy and plan. For example, if your organization is trying to foster better collaboration, your strategy and plan might have to explain how to work together by using collaboration tools. If your organization is moving from a waterfall model to an agile approach, you will need to provide training for the agile method, tools, processes, and cadences. Other common examples are data analytics and cloud leadership skills.

Why is it valuable?

Developing a training strategy and plan enables an organization to align knowledge, skills, and capabilities to organizational goals while also demonstrating the value of investments for training programs.

An AWS Learning Needs Analysis produces learning recommendations for continued growth and provides a data-driven approach to workforce cloud acumen with practical application of results.

When do you use it?

Training strategy and planning efforts start at the beginning of your cloud transformation project. During this phase, gaps and change impacts are determined, and the teams and employees who are affected by the migration or modernization are identified.

An AWS Learning Needs Analysis can be conducted before a program starts, to baseline the organization's skill set, or it can be run later in the program, after the cloud transformation has been announced and leaders are looking to budget and plan training curriculum.

3.5 Create risk mitigation strategy and plan

What is it?

A risk mitigation strategy and plan are designed to eliminate, reduce, or control the impact of an organization's exposure to potential risks in a timely manner. These documents provide a mechanism for periodically evaluating how the cloud transformation is going by using an evaluation tool that consistently evaluates risks across the program and that can be used at a regular cadence or at a scrum ceremony. By using a risk mitigation strategy and plan, you can determine priorities for action and assess risks before they become issues. Owners can be assigned for risk management and corrective actions. These documents set the dimensions by which the change acceleration team can categorize risks; for example: vision and clarity, culture, commitment, communications, retention and engagement, skills and capability.

Why is it valuable?

Establishing a risk mitigation process offers a structured way to gain visibility into the people-related issues that can stall, derail, or delay a cloud transformation. It allows for a consistent review of the status of the project as the team moves through the designated phases for the lifecycle of the program. This process helps ensure that deliverables are on time, on budget, and produced with high quality. It also offers an integrated approach with the cloud transformation team to identify, assess, and address risks.

When do you use it?

Use a risk mitigation strategy and plan when the program kicks off to design the format and establish risk dimensions. Review the strategy and plan on a regular cadence, and update them as required.

3.6 Develop sponsor roadmap

What is it?

A sponsor roadmap is a document that encourages leaders to demonstrate their support for changing processes and behaviors as part of the cloud transformation and transition to the future state organization. It serves to collaborate with leaders and promote the benefits and value of the future state organization, build a comprehensive support plan, and hold leaders accountable for actions asked of them in strategic alignment with the cloud transformation.

Why is it valuable?

Active and visible sponsorship is the primary driver for successful cloud migration, modernization, and adoption. Active engagement and presence are instrumental in establishing the desired behaviors expected of individuals and organizations. A structured process secures consistency in messaging and helps achieve the intended organizational objectives. Individuals will follow if their leaders are communicating regularly and demonstrating the behaviors expected of them.

When do you use it?

Secure sponsor commitment from the beginning of the cloud migration and modernization. Provide general awareness and understanding of the sponsorship process to executives and cloud migration/modernization leaders. Onboard sponsors appropriately and provide role descriptions, accountability, key messaging, sponsorship roadmap, and timeline. Reinforce the message that the change acceleration team will be involved in every step of the process to ensure commitment. Key messaging reinforces the cloud migration vision, benefits, and overall business value.

3.7 Develop sustainability plan

What is it?

A sustainability plan describes the desired future state behaviors and organizational structures beyond the initial phases of cloud migration or modernization. It helps establish the ongoing

adoption of cloud technologies, the use of repeatable patterns and processes, and continuous training efforts in alignment with evolving technologies. The sustainability plan continues beyond the initial cloud transformation, migration, or modernization effort to drive the original vision, business value, and benefits over the long term. It reinforces the processes and behaviors expected in the future state model.

Why is it valuable?

The sustainability plan looks beyond the initial cloud migration phase with the intent to secure the steps necessary to support the adoption of the future state model, and to stand the test of time. It provides a mechanism for future-proofing the cloud transformation, as people and technologies evolve over time.

When do you use it?

Develop a sustainability plan when the cloud transformation is under way and the team has gained experience with the process. It is typical for cloud migration and modernization teams to iterate and experiment how they operate, so creating a sustainability plan too early might result in some rework. Align planning activities with the leadership team to understand expectations beyond the initial phase of the cloud migration or modernization. It is critical to also consider organizational changes; gaps in positions, roles, responsibilities, and communications; additional training needs; and knowledge libraries or repositories. As the project progresses and the team works more rapidly and scales, the sustainability plan might evolve. It might become necessary to capture needs from weekly status updates, to make sure that the sustainability plan stays current and accurate.

Point 4. Engage the Organization

Engage the Organization is intended to activate the strategies and plans that have been created and to use the insights gained from the various assessments that you have already conducted. As the transformation starts to take place, the burden of the transformation begins to shift from the cloud transformation team and cross-functional leaders to the employee base. Engage the Organization contains five subpoints:

4.1 Implement change management plans

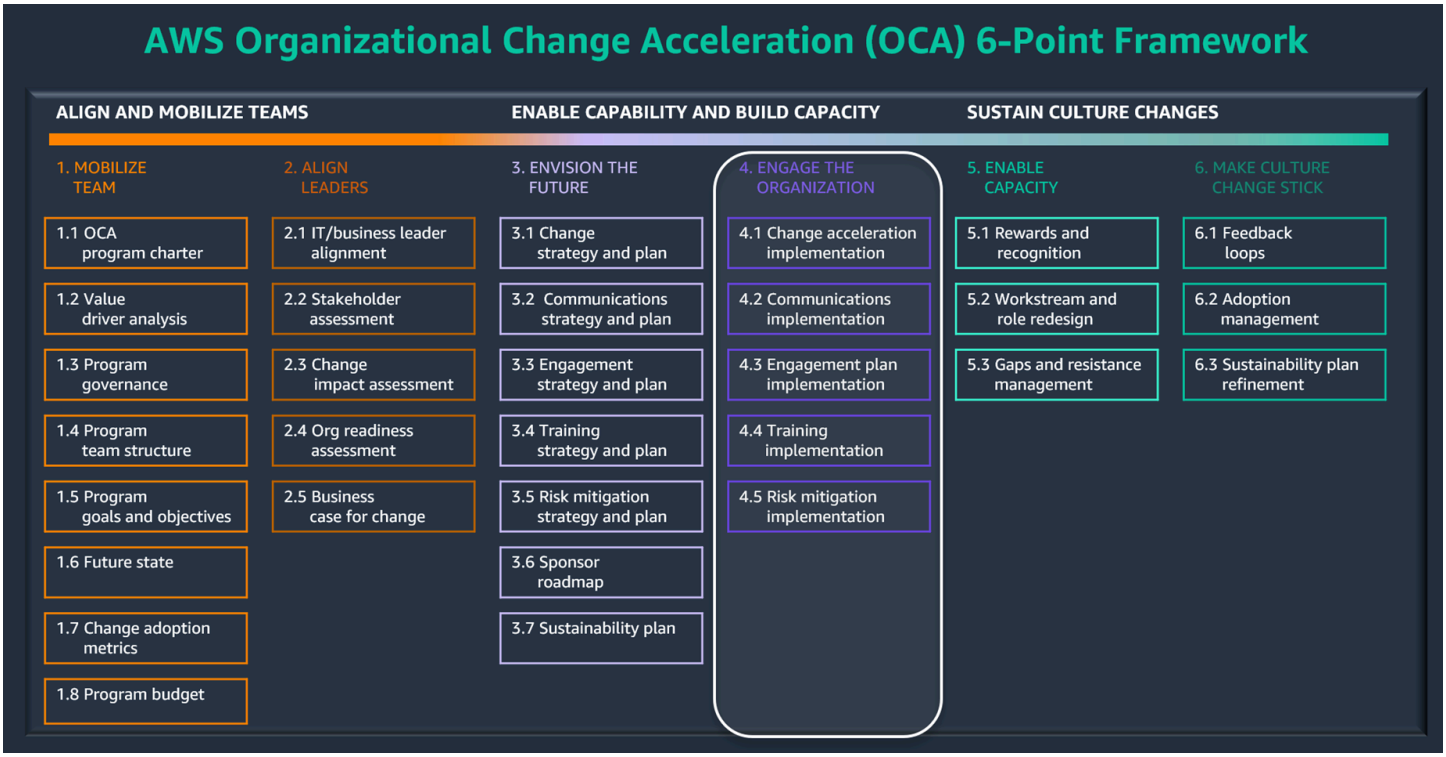
4.2 Deploy communication plan

4.3 Deploy engagement plan

4.4 Deploy training plan

4.5 Monitor and manage risk mitigation

This section provides a brief overview of Engage the Organization and its subpoints. For a detailed discussion, see the guide AWS Organizational Change Acceleration (OCA) 6-Point Framework – 4. Engage the Organization.



4.1 Implement change management plans

What is it?

Implementing change management plans involves launching the activities identified in the change strategy and plan in a structured and detailed way. You can document these activities further in the team's project management tool to ensure that the appropriate time, resource, and sequence is being applied in a disciplined fashion.

Why is it valuable?

The objective of change management plans is to ensure change management alignment with cloud transformation team activities, secure commitment from executive sponsors and leaders, and begin the process to identify and engage affected stakeholders.

When do you use it?

Before implementing the change management plans, make sure that all tasks have been accounted for, validated, and incorporated in the master plan; a responsible, accountable, consulted, informed (RACI) matrix is complete; a team organizational structure has been established and communicated; and change acceleration team members have been identified, onboarded, and properly authenticated in their roles. To keep the program synchronized with the broader cloud transformation, be sure to integrate the tasks in the project management or agile tool(s) that you are using.

> **Note**
>
> The RACI matrix defines and assigns roles and responsibilities in a project. For example, you can create a RACI to define security control ownership or to identify roles and responsibilities for specific tasks in a cloud transformation project.

4.2 Deploy communication plan

What is it?

This step involves launching the activities identified in the communication strategy and plan. The objective is to ensure communication and message alignment with the cloud transformation team's activities, the voice of the executive sponsor, the commitment of the designated leaders and champions, and synchronization with the HR and the internal communications teams. You can

maintain the focus on benefits and business value, and sustain overall stakeholder engagement through key messages, varied voices, multiple channels, and feedback loops.

Why is it valuable?

The result is to ensure communication and message alignment with cloud transformation team activities. As the cloud transformation speeds up, scales, and evolves, and the organization inevitably experiences turnover, the value of communications cannot be underestimated. In fact, inconsistent, outdated, or mistargeted communications can cause timeline delays, distrust, and tarnished relationships. In some organizations, a trickle-down or tiered communication plan might be necessary. This adds complexity and project management tasks, because information must be communicated in layers, in a sequential order.

When do you use it?

A communication plan should be a living document that is tracked and updated at least weekly. Additionally, approvals required for communications should also be tracked and documented to ensure that the appropriate level of quality assurance, scrutiny, and accuracy is part of all communications. Use feedback mechanisms to gauge engagement, message effectiveness, length, frequency, and targeted audience. Feedback on communication effectiveness can be tracked monthly with other cloud transformation program reporting.

4.3 Deploy engagement plan

What is it?

As described previously, an engagement plan is a systematic approach that describes specific ways in which an individual, stakeholder group, or organization will address changes brought forth by the cloud transformation. The intent of the engagement plan is to keep all key stakeholders committed to, and focused on, the desired business results of the cloud transformation. You should include and engage each stakeholder group by providing relevant information according to the prioritization and mapping in the commitment model, as outlined in the engagement strategy.

Why is it valuable?

Deploying the engagement plan involves proactively managing the pace and amount of change that each stakeholder group must undergo to avoid *change overload*, which maximizes the potential for a successful transition from current to future state. Having a methodical approach to deploying the engagement plan also helps the change acceleration team proactively manage any potential roadblocks and build organizational buy-in, commitment, and capability for change.

When do you use it?

You should use the engagement plan throughout the lifecycle of the cloud transformation project to set up the stakeholder engagement program; to develop organizational awareness, understanding, buy-in, and commitment; during transitional phases such as major migrations and modernizations; and regularly as a mechanism for monitoring and reporting.

4.4 Deploy training plan

What is it?

As described earlier, a training plan is a document that identifies the training that has to be delivered, and the process for developing and delivering the training. When you deploy the training plan, consider implementing a training effort that is consistent with your organization's activities. Meaningful training that is not disruptive to an employee's accustomed workflow decreases resistance and allows employees to readily respond to change. Additionally, using a data-driven approach to gather training preferences from an AWS Learning Needs Analysis and applying those preferences to the training plan helps build buy-in and encourages employees to complete training.

Why is it valuable?

Deploying a training plan is beneficial for building the transformational skills required to operate in the cloud. Additionally, determining the appropriate target audience and methodically scheduling courses in a way that works for their schedules and business objectives help optimize the use of the training budget and ensure maximum participation in training events.

When do you use it?

Use a training plan throughout the program to determine the training needs of the organization, the skills that need to be built, the training to offer on a quarterly or monthly basis, where to post training tools, how to advertise training, and how to measure and monitor training completion. On an annual basis, determine new training needs based on new skills required and new people in the organization, and scope a new training plan in line with the annual training budget.

4.5 Monitor and manage risk mitigation

What is it?

As described earlier, a risk mitigation strategy and plan are designed to eliminate, reduce, or control the impact of an organization's exposure to potential risks in a timely manner. Monitoring and managing risk mitigation is a proactive step that acknowledges that any large change will come with a number of potential risks and roadblocks. The resolution of risks requires commitment and close alignment with the executive sponsor, leaders, and champions.

Why is it valuable?

Each risk has an associated probability and severity factor. Monitoring risks gives teams a better understanding of the number of issues that can disrupt or derail the cloud transformation, how likely they are (probability), and how devastating the outcomes could be (severity). By actively reviewing risks and coming up with plans to monitor them, you can manage and mitigate risks before they turn into issues.

When do you use it?

Use a risk mitigation strategy and plan when the program kicks off to design the format and establish risk dimensions. Review the risk mitigation strategy and plan at a regular cadence, and update them as required. Monitor and manage the plan and report results to leadership to determine if any additional mitigation steps should be put in place.

Point 5. Enable Capacity

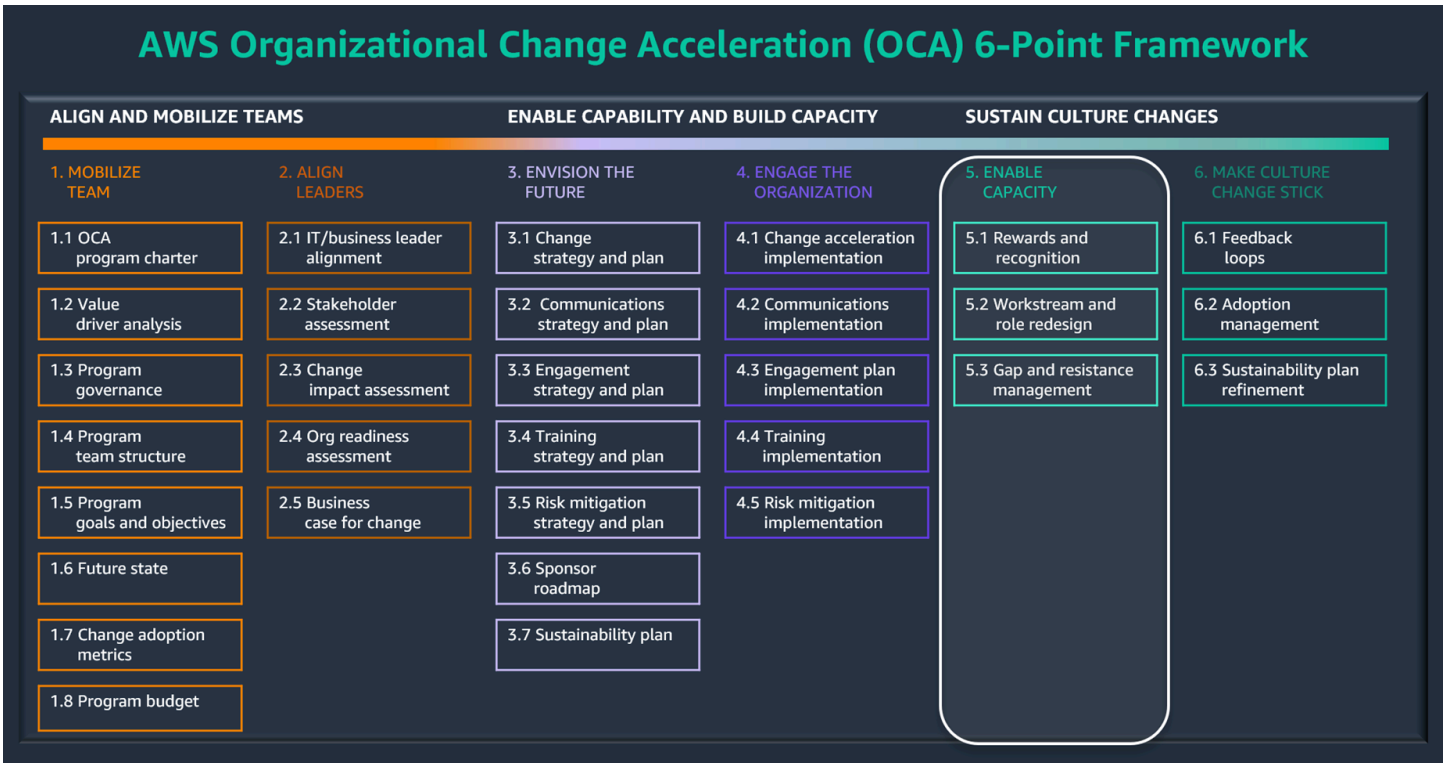
Enable Capacity creates organizational pull for changes by rewarding and recognizing key behaviors, redesigning roles to match the needs and ongoing requirements for new capabilities, and managing stakeholder resistance that might emerge in the process. Enable Capacity contains three subpoints:

5.1 Provide rewards and recognition

5.2 Redesign workstreams and roles

5.3 Discuss gaps and manage resistance

This section provides a brief overview of Enable Capacity and its subpoints. For a detailed discussion, see the guide AWS Organizational Change Acceleration (OCA) 6-Point Framework – 5. Enable Capacity.



5.1 Provide rewards and recognition

What is it?

Rewards and recognition provide a mechanism for highlighting key behaviors and reinforcing them in support of the cloud transformation. Over time, the new behaviors will drive a new culture throughout the organization. A reward is something that is given in return for good behavior or for some service or achievement. A reward can also be a stimulus that follows a correct or desired response and encourages the reoccurrence of the response. Recognition is an acknowledgment, special notice, or attention that highlights an achievement. A good reward and recognition system pulls people in because they see what is being rewarded and recognized, they feel good about receiving (and maybe giving) rewards and recognition, and they want to be part of it. However, research indicates that behaviors take about 20 tries before they are assimilated into a person's normal patterns. In other words, organizations require both patience and consistency to fully integrate people into a rewards and recognition culture.

Why is it valuable?

Rewards and recognition provide an appreciation of good work and new behaviors. Employees in a traditional organization might oppose certain behaviors that are necessary for a cloud transformation. In the context of a cloud transformation, leaders should reward and recognize behaviors that might not match the previous ways of working. For example, experimentation, failing fast, working back from the customer, and decentralized decision making might be new behaviors for an organization. As a result, recognizing and rewarding these behaviors will be effective in signaling that things need to change. In addition, the organization must be able to get a return on reward (ROR) in order to sustain any initiative. For example, if you offer a gift card to employees who get a cloud solutions architect certification, their improved skill set will deliver more value to the organization than the money you invested in the gift card.

When do you use it?

Rewards and recognition should be given to participants in a variety of roles and levels, through a mixture of informal and formal channels, with abundance, and in a timely manner. Timeliness is key to ensuring that the reward or recognition recipients and other observers make the connection between the behavior and the positive consequences of it. For formal rewards and recognition, follow an established cadence that people can anticipate. Informal rewards and recognition should be ad hoc and involve an element of surprise.

5.2 Redesign workstreams and roles

What is it?

Role redesign helps shape the changing roles of future work. It is the process of reshaping tasks and responsibilities to better align with both internal and external changes in an organization. For example, digitization and automation might impact roles inside the organization.

Why is it valuable?

In cloud migration and modernization, the objective of workstream and role redesign is to assess and design the roles needed to support a designated workstream in a future state operating model. The activities focus on identifying and preparing the organization for the transition to redesigned processes and the new system—and potentially change employee and end-user roles, job tasks, workflows, competencies and metrics.

When do you use it?

Determining when to begin role redesign depends on the timelines and objectives of the organization and cloud transformation. It is helpful to review roles a few times every year and create new training plans, succession plans, hiring plans, and development plans as a result. This activity should be conducted with the members of IT, business, and HR teams. AWS offers specific role ramp-up guides to help transition companies and users on their cloud journeys. These guides can be accessed any time, on demand. In addition, building your Cloud Operating Model (or evaluating it) might become a necessary step in your cloud transformation.

5.3 Discuss gaps and manage resistance

What is it?

Resistance to change is a normal human reaction, but managing that resistance can present an organizational challenge. Change acceleration actively seeks to understand the level of readiness and minimize the resistance of people who are affected by cloud transformation. Factors that increase resistance to a change include ambiguity in vision, inadequate understanding of benefits and business value, limited leadership support and involvement, and inadequate communication at every level of the organization. These factors can lead to misinformation, uncertainty, skepticism, indifference, and ultimately inaction.

Why is it valuable?

As you identify areas of resistance, dive deep to determine root causes and pockets of resistance, develop corrective action plans, and enable sponsors and leaders to manage resistance. These actions can help remove friction and prevent the cloud transformation from stalling or derailing.

When do you use it?

If the executive sponsors of a cloud transformation program have been building alignment with their peers, communicating value, and driving momentum on a continuous basis, resistance will be rare. When you do encounter resistance, strategize and thoughtfully plan your response in a way that appeals to the political, logical, and emotional perspectives. Getting top-down support can be necessary to diffuse strong resistors or to rationalize the cloud transformation with a new strategic initiative.

To manage resistance effectively:

- Listen and understand objections.
- Focus on the *what* instead of the *how*.
- Remove barriers to transformation.
- Provide simple, clear choices and consequences.
- Create hope.
- Show the benefits in a real and tangible way.
- Make a personal appeal.
- Convert the strongest dissenters, and have them spread the word.

Point 6. Make Culture Change Stick

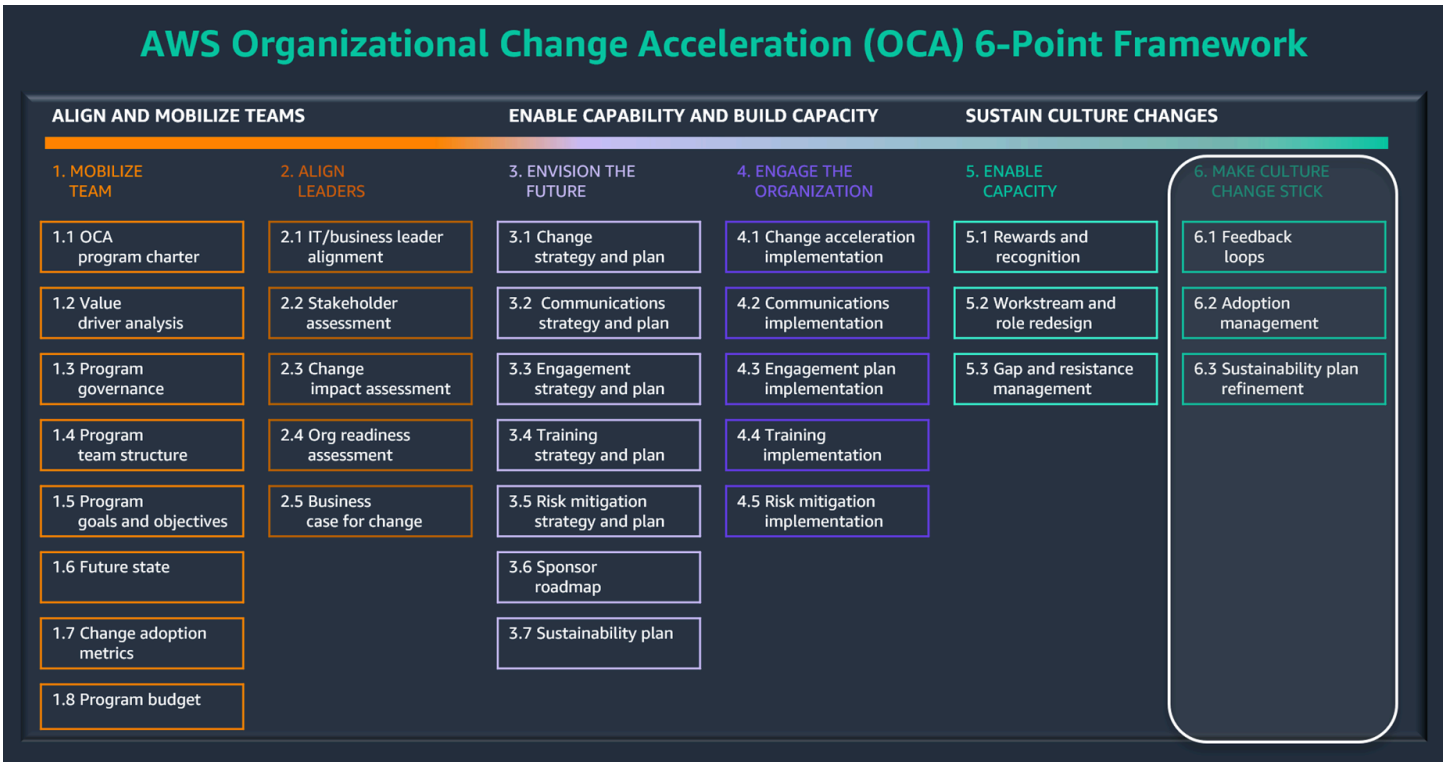
Make Culture Change Stick takes the work of the change acceleration framework and builds sustainability to stand and last the test of time. In this workstream, you create feedback loops for repeatable patterns and lessons learned, actively manage adoption, and create a post-implementation and sustainability plan so that the change acceleration team can be disbanded, and the changes, behaviors, and culture that has been created can be operationally and passively (rather than actively) managed. Make Culture Changes Stick has three subpoints:

6.1 Establish feedback loop

6.2 Create adoption management checklist

6.3 Develop post-implementation and sustainability plan

This section provides a brief overview of Make Culture Change Stick and its subpoints. For a detailed discussion, see the guide AWS Organizational Change Acceleration (OCA) 6-Point Framework – 6. Make Culture Change Stick.



6.1 Establish feedback loop

What is it?

A feedback loop enables an organization to adjust its performance by giving employees an opportunity to respond to changes that result from cloud transformation in a healthy and authentic way. The primary objectives of a feedback loop are to support two-way information sharing, involve key stakeholders throughout the project, and collect information to monitor communication effectiveness. Some useful channels for feedback loops include one-on-one interviews; focus groups; team, department, and staff meetings; engagement or organizational readiness surveys; communication portals; and project mailboxes. If your organization uses a social media tool, you can also monitor those channels to gather feedback in the form of comments, sentiment, likes, dislikes, traffic, and so on.

Why is it valuable?

Establishing a feedback loop enables you to collect honest reactions from stakeholders and refine (and continuously improve) change acceleration activities based on actual data. An easy-to-use tool makes the feedback easy to gather, analyze, and incorporate into cloud transformation activities. However, a feedback loop becomes powerful and effective when you act on the feedback, communicate that the feedback was received, and identify the changes that were made as a result of the feedback. This helps the program improve as a direct result of feedback, and gain credibility as an indirect result of feedback.

When do you use it?

Ideally, feedback loops should be incorporated into the plan as part of measurement. In designing the feedback process, determine a reasonable timeframe for responding to inquiries or comments. Consider the timeliness of providing feedback in relation to the program's speed and cadence. For example, feedback that is captured on a weekly, biweekly, and monthly basis can then be used as input into a scrum retrospective meeting.

6.2 Create adoption management checklist

What is it?

An adoption management checklist helps ensure the effectiveness of change acceleration activities and gauge overall cloud transformation adoption. The adoption management checklist validates that leaders and stakeholders are prepared, are engaged, and understand the benefits and business value of moving to a new Cloud Operating Model. This activity assumes that all foundational plans are developed and approved for implementation, including change, communication, risk, and training strategies and plans.

Why is it valuable?

An adoption management checklist is valuable in tracking eight key success factors associated with cloud transformation: visible and committed leadership, compelling need for change, clarity of direction, broad-based participation, targeted and effective communications, single program focus, measurable goals, and disciplined project management.

When do you use it?

Reviewing the adoption management checklist on a quarterly basis provides a mid-range planning horizon for the cloud transformation team, and enough flexibility to make adjustments as required. As action plans are created as a result of findings, they can be tracked as part of regular (weekly or biweekly) scrum activities.

6.3 Develop post-implementation and sustainability plan

What is it?

A post-implementation and sustainability plan is a document that helps an organization achieve its long-term goals, even when the dedicated cloud transformation team disbands. The objective of this plan is to enable organizations to ensure that people-related mechanisms remain in place following a cloud transformation effort.

To ensure that change persists, is embedded, and is sustainable, consider the following:

- Formalize the change measurement through quarterly reporting to the change sponsor or other senior executive.
- Embed the change into employee performance plans or job responsibilities.
- Dedicate a percentage of full-time employees' time to monitor the change.
- Align change-related activities with other formal processes and policies such as the annual performance plan and compliance training plans.

Why is it valuable?

When a major step of the cloud transformation process (such as migration or modernization) is complete, additional changes are likely to emerge. Creating a long-term strategic plan to sustain those changes is essential. For example, changing the culture or behavior in one area of the organization might result in a process change in another area, or a change might have to be repeated across other business units.

When do you use it?

Every cloud transformation involves a number of stakeholders and implementors of the change acceleration plan. It is important to identify who should be involved in the ongoing sustainability of the change project. You can then set timeframes to re-evaluate and review ongoing ownership at intervals after the official completion of the project (for example, after 3 months, 6 months, or 12 months, depending on the project duration). Depending on project requirements, you might also have to develop a continuous improvement plan or an ongoing review plan to monitor and evaluate your change. A continuous improvement plan might include:

- Purpose
- Governance structure
- Roles and responsibilities
- Calendar of events, review, and feedback sessions
- Ongoing measures of success

In addition to evaluating stakeholders for sustainability, ensure that planned communications continue beyond the initial cloud transformation. Make sure that communication champions are ready to accept the transition and that the team is adequately trained, has the time to accomplish the tasks, and is technologically ready to support the program. Identify the right resources to manage ongoing communication at the conclusion of the active cloud migration or modernization project. Key actions to consider include:

- Developing a transition plan.
- Identifying ongoing communication champions.
- Meeting with communication champions to outline roles, responsibilities, hierarchy, and action items.
- Conducting a transition meeting to confirm next steps.
- Developing a communications roadmap.

Additionally, you will need to address training gaps that were discovered after cloud migration or modernization. Key considerations include:

- Reviewing feedback, lessons learned, and changes.
- Soliciting feedback from participants.

- Developing additional training support materials as appropriate.
- Documenting a remediation training plan (for example, training for new hires, quarterly or event-driven training refreshers).
- Creating a cloud transformation archive of all associated training materials (project plan, audit and assessment findings, training strategy, curriculum outlines, finalized documentation, evaluation forms, and so on).
- Developing a plan for updates and revisions of materials.

When you include these activities as part of your sustainability plan, your organization will gain a better understanding of how well change is persisting within the organization. Being patient, persistent, data-driven, and methodical will help your organization adhere to the sustainability plan.

Wrap Up

You can apply the six points to change acceleration in both waterfall and agile frameworks. Change is ongoing: A new stakeholder, change of scope, or accelerated or stretched timeline can require the team to go back and reevaluate points that have already been completed as part of the cloud transformation. Change acceleration, at its core, is iterative. As a best practice, we recommend that you assess, design, test, and refine your change acceleration plans in an ongoing and iterative fashion.

Successful change takes place from the inside out. It starts with how your leaders and workforce behave, think, and feel, how your work environment is structured, how your processes are configured, how your technology enables innovation, and how your culture evolves to meet these new ways of working. You will want to leverage your enterprise heritage and core values while you incorporate new behaviors and mindsets that attract, retain, and empower a workforce that's invested in continuously improving and innovating on behalf of your customers. Having dedicated change acceleration resources who take an intentional approach by applying a change framework enables your enterprise to iteratively and consistently build enterprise change skills to foster a culture of innovation.

Persistence and agility are the keys to making change endure. Too often, change acceleration efforts stop after the project goes live. Because the new ways of working are no longer reinforced, people revert back to their old habits. To avoid that outcome, make sure that all key change leaders are aware of the winning behaviors and subsequent actions that need to be sustained. Reiterate the vision articulated in the case for change, and the norms that will sustain that vision. As change reinforcement strategies are applied, they will take hold, and the old ways will be replaced by the new ones. This cycle will repeat itself as the organization evolves, innovates, and grows.

FAQ

Is the 6-Point Framework only for new customers or new migrations?

No. You can use the 6-Point Framework at any time to accelerate your cloud transformation journey, to build stakeholder buy-in, and to increase the effectiveness of actions that are already in place.

What is culture and change leadership acceleration?

Culture and change leadership acceleration is about creating one shared reality across the organization, project, and individuals to accelerate adoption and increase return on investment (ROI). This approach helps you apply an evidence-based, end-to-end change process that is structured, integrated, and transparent, to shorten project completion times with minimal performance impact and optimal results.

Culture and change leadership acceleration follows the **AWS Change Acceleration 6-Point Framework** and Organizational Change Management Toolkit, which is described in detail in this article.

Why is culture and change acceleration needed for cloud adoption?

For an AWS transformation such as a cloud migration or modernization project, culture and change acceleration is needed to make the transformation effective at three levels: individual, project, and organization.

- At the individual level, it is about increasing awareness, desire, knowledge, and ability, and then reinforcing those in the cloud: increasing digital fluency, upskilling with AWS training and certifications, and shifting mental models and associated behaviors.
- At the project level, it is about anticipating and solving for the people-related effects of the cloud journey: minimizing business disruption to accelerate outcomes for your customers.

At the organizational level, it is about increasing leadership competency and creating an enterprise that is ready to change how it governs the cloud: creating one shared reality and a culture of innovation, learning, and continuous growth.

As an executive sponsor or leader, what can I do to enhance the success of my organization's cloud journey?

Cloud transformations are most successful when they are led by communicative and fully engaged leaders. Don’t lose focus on the vision, and remain active and visible throughout the project lifecycle. Lead from the front by clearly demonstrating your support for the project in order to empower your teams. It is also crucial to know the importance of the people side of change and to be willing to devote the right amount of time and resources to address it.

Should I think of culture and change leadership as an active workstream or domain? Should I scope or staff my cloud teams with these capabilities?

Yes, culture and change leadership works both horizontally and vertically to cohesively identify and mitigate organizational disruption. Applying proven strategies at both the executive and program levels is how change gets socialized and accepted. Staffing your workstream or domain with skilled and experienced practitioners of change acceleration will help you maximize the effectiveness of the cloud adoption journey, mitigate areas of organizational and political resistance, and make the transformation an exciting and engrained part of your company’s culture.

Typical roles for the change acceleration workstream include a people transformation executive advisor who works at the executive level, a change acceleration lead who works at the program level, and a transformation executive program oversight lead who works at both levels with a focus on delivery quality. In addition to these, other roles might be required, depending on the scale and complexity that you identify when you scope your project. These can include staffing experts who have expertise in communications, training, employee engagement, readiness, and Cloud Center of Excellence (CCoE) activities. Resources might be full-time or part-time, internal to the customer or externally staffed through AWS or an AWS Partner. If you staff these roles externally, we recommend that you enable knowledge transfer between the change acceleration subject matter resources and the customer leads. This approach supports more rapid and lasting deployment and adoption, and paves the way for sustainable ownership of the cloud transformation changes.

How do I know if my organization might need culture and change leadership acceleration?

Four global industry trends drive demand for change acceleration: digital transformation and cloud migration, workforce optimization and culture improvements, mergers and acquisitions, and regulatory changes. These trends are at the top of most of organizations' growth strategies because they support objectives for hiring the best talent, offering the best customer experience, and providing the best products and services.

However, these trends have a widespread effect on an organization's culture and the ways in which people do their jobs on a daily basis. Use the trends as guidelines to identify where your organization is currently in its cloud journey, and to determine whether you need culture and change leadership acceleration to support your project:

- Digital transformation and cloud migration: Transforming information has a wide-ranging impact on how people engage with and use data.
- Workforce optimization and culture improvements: Changes in the workforce culture—for example, onsite versus remote collaboration, new tools, high-touch access to amenities—require digital fluency.
- Mergers and acquisitions: Minimize operational disruption and assimilate dual cultures to realize synergy.
- Regulatory changes: Keep up with changes and stay compliant (for example, by digitizing data management).

What value does change acceleration bring to my organization?

Prosci, a global organizational change management research firm, has surveyed more than 6000 companies globally over the last two decades. Their data shows that enterprises realize better outcomes when they apply a robust (good to excellent) change framework.

When there is an intentional focus to manage the people side of change, leaders have recognized an increase in value realization of up to 600 percent. Getting the people components right across a project results in a positive multiplier effect in ROI and value realization, and makes the project a more enjoyable employee experience. (See The Value of Organizational Change Management for Project Managers on the Prosci website.)

A change acceleration study about cloud transformations published by Accenture surveyed 1100 organizations across eight dimensions: improved organizational agility and innovation, stronger IT and business collaboration, faster cloud migration, improved customer experience, increased cloud adoption, better use of data for decision making, achieved cost savings, and increased speed or efficiency to launch new lines of business. The report compared results from leaders who said they focused on technology only with results from leaders who said they focused on both technology and people. Leaders who managed their initiatives with a focus on people achieved better outcomes on all dimensions. Getting the people component right clearly has a multiplier effect.

Employees who are engaged and feel secure in their roles will build their knowledge, skills, confidence, and connections. Their employers can then build a stronger IT and business collaboration, which, in turn, enables faster cloud migration, increased cloud adoption, increased efficiency, and cost savings. All of these traits show up in an established culture of digital fluency and innovation, which helps compete for the best talent.

Next steps

Preparing your organization for success in the cloud requires a dedicated focus on culture and change leadership acceleration. After you read this article and understand the benefits of programmatic change acceleration, you can follow these key steps to accelerate your organization's cloud transformation and adoption journey:

1. Identify your transformational initiative.
2. Determine your desired business outcomes and timeline.
3. Identify leaders who will drive the program forward, and the people who will be involved and affected.
4. Identify change acceleration leaders who will drive the six points discussed in this paper.
5. Organize your plans, tools, templates, and cadence to build the program framework.

Resources

For more information about change acceleration and organizational change management, see the following resources.

AWS Change Acceleration 6-Point Framework guides

- AWS Organizational Change Acceleration (OCA) 6-Point Framework – 1. Mobilize Team
- AWS Organizational Change Acceleration (OCA) 6-Point Framework – 2. Align Leaders
- AWS Organizational Change Acceleration (OCA) 6-Point Framework – 3. Envision the Future
- AWS Organizational Change Acceleration (OCA) 6-Point Framework – 4. Engage the Organization
- AWS Organizational Change Acceleration (OCA) 6-Point Framework – 5. Enable Capacity
- AWS Organizational Change Acceleration (OCA) 6-Point Framework – 6. Make Culture Change Stick

AWS resources

- AWS Customer Enablement
- AWS Executive Insights
- AWS Managed Services
- AWS Partner Network
- AWS Professional Services
- AWS Ramp-Up Guides
- Migrating to Amazon Web Services
- Migration Readiness Assessment (MRA)

AWS blog posts, articles, podcasts, and videos

- 4 reasons to invest in entry-level cloud talent (AWS Training and Certification blog)
- Accelerating cloud adoption through culture, change, and leadership (AWS Prescriptive Guidance)
- An Inside Look at the Amazon Culture: Experimentation, Failure, and Customer Obsession (AWS for Industries blog)

- AWS Conversations with Leaders Podcast (AWS Executive Insights)
- AWS Enterprise Strategists (AWS Executive Insights)
- Building your Cloud Operating Model (AWS Prescriptive Guidance)
- Building a culture of innovation to better serve citizens (AWS Public Sector blog)
- Digital Transformation: Lead with Culture, Enable with Technology (AWS Executive Insights)
- Elements of Amazon's Day 1 Culture (AWS Executive Insights)
- Failing & Creating a Culture of Learning (AWS Cloud Enterprise Strategy blog)
- How to Create a Data-Driven Culture (AWS Cloud Enterprise Strategy blog)
- How to Manage Organizational Change and Cultural Impact During a Cloud Transformation (video, AWS Online Tech Talks)
- Job Roles in the Cloud (self-paced course, AWS Training and Certification)
- The Chief People Officer—The CIO's Partner in Change (AWS Cloud Enterprise Strategy blog)
- The CPO-CIO Partnership Part 2: Taking the Gloves Off (AWS Cloud Enterprise Strategy blog)
- Workforce (AWS Executive Insights)
- Workforce Development: Building the workforce of tomorrow (AWS Public Sector)

Other resources

- 4 Ways CIOs Can Foster Digital Dexterity (Gartner)
- A Leader's Framework for Decision Making (Harvard Business Review)
- Best Practices in Change Management (Prosci)
- Change Management Needs to Change (Harvard Business Review)
- Developing leadership capabilities (McKinsey & Company)
- Getting practical about the future of work (McKinsey & Company)
- Leading Change: Why Transformation Efforts Fail (Harvard Business Review)
- Modern Applications at AWS (All Things Distributed)
- Modern Cloud Champions (Accenture)
- Psychological safety and the critical role of leadership development (McKinsey & Company)
- Staffing Your Enterprise's Cloud Center of Excellence (Medium)
- The Future of Leadership Development (Harvard Business Review)

- Turning Potential into Success: The Missing Link in Leadership Development (Harvard Business Review)
- What's missing in leadership development? (McKinsey & Company)
- Your Enterprise's Flywheel to the Cloud (Medium website)

Document history

The following table describes significant changes to this guide. If you want to be notified about future updates, you can subscribe to an RSS feed.

Change	Description	Date
Added links	Added links to the new OCA 6-point Framework guides throughout this overview; updated graphics	February 28, 2025
Initial publication	—	October 17, 2022

AWS Prescriptive Guidance glossary

The following are commonly used terms in strategies, guides, and patterns provided by AWS Prescriptive Guidance. To suggest entries, please use the **Provide feedback** link at the end of the glossary.

Numbers

7 Rs

Seven common migration strategies for moving applications to the cloud. These strategies build upon the 5 Rs that Gartner identified in 2011 and consist of the following:

- Refactor/re-architect – Move an application and modify its architecture by taking full advantage of cloud-native features to improve agility, performance, and scalability. This typically involves porting the operating system and database. Example: Migrate your on-premises Oracle database to the Amazon Aurora PostgreSQL-Compatible Edition.
- Replatform (lift and reshape) – Move an application to the cloud, and introduce some level of optimization to take advantage of cloud capabilities. Example: Migrate your on-premises Oracle database to Amazon Relational Database Service (Amazon RDS) for Oracle in the AWS Cloud.
- Repurchase (drop and shop) – Switch to a different product, typically by moving from a traditional license to a SaaS model. Example: Migrate your customer relationship management (CRM) system to Salesforce.com.
- Rehost (lift and shift) – Move an application to the cloud without making any changes to take advantage of cloud capabilities. Example: Migrate your on-premises Oracle database to Oracle on an EC2 instance in the AWS Cloud.
- Relocate (hypervisor-level lift and shift) – Move infrastructure to the cloud without purchasing new hardware, rewriting applications, or modifying your existing operations. You migrate servers from an on-premises platform to a cloud service for the same platform. Example: Migrate a Microsoft Hyper-V application to AWS.
- Retain (revisit) – Keep applications in your source environment. These might include applications that require major refactoring, and you want to postpone that work until a later time, and legacy applications that you want to retain, because there's no business justification for migrating them.

- Retire – Decommission or remove applications that are no longer needed in your source environment.

A

ABAC

See attribute-based access control.

abstracted services

See managed services.

ACID

See atomicity, consistency, isolation, durability.

active-active migration

A database migration method in which the source and target databases are kept in sync (by using a bidirectional replication tool or dual write operations), and both databases handle transactions from connecting applications during migration. This method supports migration in small, controlled batches instead of requiring a one-time cutover. It's more flexible but requires more work than active-passive migration.

active-passive migration

A database migration method in which the source and target databases are kept in sync, but only the source database handles transactions from connecting applications while data is replicated to the target database. The target database doesn't accept any transactions during migration.

aggregate function

A SQL function that operates on a group of rows and calculates a single return value for the group. Examples of aggregate functions include `SUM` and `MAX`.

AI

See artificial intelligence.

AIOps

See artificial intelligence operations.

anonymization

The process of permanently deleting personal information in a dataset. Anonymization can help protect personal privacy. Anonymized data is no longer considered to be personal data.

anti-pattern

A frequently used solution for a recurring issue where the solution is counter-productive, ineffective, or less effective than an alternative.

application control

A security approach that allows the use of only approved applications in order to help protect a system from malware.

application portfolio

A collection of detailed information about each application used by an organization, including the cost to build and maintain the application, and its business value. This information is key to the portfolio discovery and analysis process and helps identify and prioritize the applications to be migrated, modernized, and optimized.

artificial intelligence (AI)

The field of computer science that is dedicated to using computing technologies to perform cognitive functions that are typically associated with humans, such as learning, solving problems, and recognizing patterns. For more information, see What is Artificial Intelligence?

artificial intelligence operations (AIOps)

The process of using machine learning techniques to solve operational problems, reduce operational incidents and human intervention, and increase service quality. For more information about how AIOps is used in the AWS migration strategy, see the operations integration guide.

asymmetric encryption

An encryption algorithm that uses a pair of keys, a public key for encryption and a private key for decryption. You can share the public key because it isn't used for decryption, but access to the private key should be highly restricted.

atomicity, consistency, isolation, durability (ACID)

A set of software properties that guarantee the data validity and operational reliability of a database, even in the case of errors, power failures, or other problems.

attribute-based access control (ABAC)

The practice of creating fine-grained permissions based on user attributes, such as department, job role, and team name. For more information, see ABAC for AWS in the AWS Identity and Access Management (IAM) documentation.

authoritative data source

A location where you store the primary version of data, which is considered to be the most reliable source of information. You can copy data from the authoritative data source to other locations for the purposes of processing or modifying the data, such as anonymizing, redacting, or pseudonymizing it.

Availability Zone

A distinct location within an AWS Region that is insulated from failures in other Availability Zones and provides inexpensive, low-latency network connectivity to other Availability Zones in the same Region.

AWS Cloud Adoption Framework (AWS CAF)

A framework of guidelines and best practices from AWS to help organizations develop an efficient and effective plan to move successfully to the cloud. AWS CAF organizes guidance into six focus areas called perspectives: business, people, governance, platform, security, and operations. The business, people, and governance perspectives focus on business skills and processes; the platform, security, and operations perspectives focus on technical skills and processes. For example, the people perspective targets stakeholders who handle human resources (HR), staffing functions, and people management. For this perspective, AWS CAF provides guidance for people development, training, and communications to help ready the organization for successful cloud adoption. For more information, see the AWS CAF website and the AWS CAF whitepaper.

AWS Workload Qualification Framework (AWS WQF)

A tool that evaluates database migration workloads, recommends migration strategies, and provides work estimates. AWS WQF is included with AWS Schema Conversion Tool (AWS SCT). It analyzes database schemas and code objects, application code, dependencies, and performance characteristics, and provides assessment reports.

B

bad bot

A bot that is intended to disrupt or cause harm to individuals or organizations.

BCP

See business continuity planning.

behavior graph

A unified, interactive view of resource behavior and interactions over time. You can use a behavior graph with Amazon Detective to examine failed logon attempts, suspicious API calls, and similar actions. For more information, see Data in a behavior graph in the Detective documentation.

big-endian system

A system that stores the most significant byte first. See also endianness.

binary classification

A process that predicts a binary outcome (one of two possible classes). For example, your ML model might need to predict problems such as “Is this email spam or not spam?" or "Is this product a book or a car?"

bloom filter

A probabilistic, memory-efficient data structure that is used to test whether an element is a member of a set.

blue/green deployment

A deployment strategy where you create two separate but identical environments. You run the current application version in one environment (blue) and the new application version in the other environment (green). This strategy helps you quickly roll back with minimal impact.

bot

A software application that runs automated tasks over the internet and simulates human activity or interaction. Some bots are useful or beneficial, such as web crawlers that index information on the internet. Some other bots, known as *bad bots*, are intended to disrupt or cause harm to individuals or organizations.

botnet

Networks of bots that are infected by malware and are under the control of a single party, known as a *bot herder* or *bot operator*. Botnets are the best-known mechanism to scale bots and their impact.

branch

A contained area of a code repository. The first branch created in a repository is the *main branch*. You can create a new branch from an existing branch, and you can then develop features or fix bugs in the new branch. A branch you create to build a feature is commonly referred to as a *feature branch*. When the feature is ready for release, you merge the feature branch back into the main branch. For more information, see About branches (GitHub documentation).

break-glass access

In exceptional circumstances and through an approved process, a quick means for a user to gain access to an AWS account that they don't typically have permissions to access. For more information, see the Implement break-glass procedures indicator in the AWS Well-Architected guidance.

brownfield strategy

The existing infrastructure in your environment. When adopting a brownfield strategy for a system architecture, you design the architecture around the constraints of the current systems and infrastructure. If you are expanding the existing infrastructure, you might blend brownfield and greenfield strategies.

buffer cache

The memory area where the most frequently accessed data is stored.

business capability

What a business does to generate value (for example, sales, customer service, or marketing). Microservices architectures and development decisions can be driven by business capabilities. For more information, see the Organized around business capabilities section of the Running containerized microservices on AWS whitepaper.

business continuity planning (BCP)

A plan that addresses the potential impact of a disruptive event, such as a large-scale migration, on operations and enables a business to resume operations quickly.

C

CAF

See AWS Cloud Adoption Framework.

canary deployment

The slow and incremental release of a version to end users. When you are confident, you deploy the new version and replace the current version in its entirety.

CCoE

See Cloud Center of Excellence.

CDC

See change data capture.

change data capture (CDC)

The process of tracking changes to a data source, such as a database table, and recording metadata about the change. You can use CDC for various purposes, such as auditing or replicating changes in a target system to maintain synchronization.

chaos engineering

Intentionally introducing failures or disruptive events to test a system's resilience. You can use AWS Fault Injection Service (AWS FIS) to perform experiments that stress your AWS workloads and evaluate their response.

CI/CD

See continuous integration and continuous delivery.

classification

A categorization process that helps generate predictions. ML models for classification problems predict a discrete value. Discrete values are always distinct from one another. For example, a model might need to evaluate whether or not there is a car in an image.

client-side encryption

Encryption of data locally, before the target AWS service receives it.

Cloud Center of Excellence (CCoE)

A multi-disciplinary team that drives cloud adoption efforts across an organization, including developing cloud best practices, mobilizing resources, establishing migration timelines, and leading the organization through large-scale transformations. For more information, see the CCoE posts on the AWS Cloud Enterprise Strategy Blog.

cloud computing

The cloud technology that is typically used for remote data storage and IoT device management. Cloud computing is commonly connected to edge computing technology.

cloud operating model

In an IT organization, the operating model that is used to build, mature, and optimize one or more cloud environments. For more information, see Building your Cloud Operating Model.

cloud stages of adoption

The four phases that organizations typically go through when they migrate to the AWS Cloud:

- Project – Running a few cloud-related projects for proof of concept and learning purposes
- Foundation – Making foundational investments to scale your cloud adoption (e.g., creating a landing zone, defining a CCoE, establishing an operations model)
- Migration – Migrating individual applications
- Re-invention – Optimizing products and services, and innovating in the cloud

These stages were defined by Stephen Orban in the blog post The Journey Toward Cloud-First & the Stages of Adoption on the AWS Cloud Enterprise Strategy blog. For information about how they relate to the AWS migration strategy, see the migration readiness guide.

CMDB

See configuration management database.

code repository

A location where source code and other assets, such as documentation, samples, and scripts, are stored and updated through version control processes. Common cloud repositories include GitHub or Bitbucket Cloud. Each version of the code is called a *branch*. In a microservice structure, each repository is devoted to a single piece of functionality. A single CI/CD pipeline can use multiple repositories.

cold cache

A buffer cache that is empty, not well populated, or contains stale or irrelevant data. This affects performance because the database instance must read from the main memory or disk, which is slower than reading from the buffer cache.

cold data

Data that is rarely accessed and is typically historical. When querying this kind of data, slow queries are typically acceptable. Moving this data to lower-performing and less expensive storage tiers or classes can reduce costs.

computer vision (CV)

A field of AI that uses machine learning to analyze and extract information from visual formats such as digital images and videos. For example, Amazon SageMaker AI provides image processing algorithms for CV.

configuration drift

For a workload, a configuration change from the expected state. It might cause the workload to become noncompliant, and it's typically gradual and unintentional.

configuration management database (CMDB)

A repository that stores and manages information about a database and its IT environment, including both hardware and software components and their configurations. You typically use data from a CMDB in the portfolio discovery and analysis stage of migration.

conformance pack

A collection of AWS Config rules and remediation actions that you can assemble to customize your compliance and security checks. You can deploy a conformance pack as a single entity in an AWS account and Region, or across an organization, by using a YAML template. For more information, see Conformance packs in the AWS Config documentation.

continuous integration and continuous delivery (CI/CD)

The process of automating the source, build, test, staging, and production stages of the software release process. CI/CD is commonly described as a pipeline. CI/CD can help you automate processes, improve productivity, improve code quality, and deliver faster. For more information, see Benefits of continuous delivery. CD can also stand for *continuous deployment*. For more information, see Continuous Delivery vs. Continuous Deployment.

CV

See computer vision.

D

data at rest

Data that is stationary in your network, such as data that is in storage.

data classification

A process for identifying and categorizing the data in your network based on its criticality and sensitivity. It is a critical component of any cybersecurity risk management strategy because it helps you determine the appropriate protection and retention controls for the data. Data classification is a component of the security pillar in the AWS Well-Architected Framework. For more information, see Data classification.

data drift

A meaningful variation between the production data and the data that was used to train an ML model, or a meaningful change in the input data over time. Data drift can reduce the overall quality, accuracy, and fairness in ML model predictions.

data in transit

Data that is actively moving through your network, such as between network resources.

data mesh

An architectural framework that provides distributed, decentralized data ownership with centralized management and governance.

data minimization

The principle of collecting and processing only the data that is strictly necessary. Practicing data minimization in the AWS Cloud can reduce privacy risks, costs, and your analytics carbon footprint.

data perimeter

A set of preventive guardrails in your AWS environment that help make sure that only trusted identities are accessing trusted resources from expected networks. For more information, see Building a data perimeter on AWS.

data preprocessing

To transform raw data into a format that is easily parsed by your ML model. Preprocessing data can mean removing certain columns or rows and addressing missing, inconsistent, or duplicate values.

data provenance

The process of tracking the origin and history of data throughout its lifecycle, such as how the data was generated, transmitted, and stored.

data subject

An individual whose data is being collected and processed.

data warehouse

A data management system that supports business intelligence, such as analytics. Data warehouses commonly contain large amounts of historical data, and they are typically used for queries and analysis.

database definition language (DDL)

Statements or commands for creating or modifying the structure of tables and objects in a database.

database manipulation language (DML)

Statements or commands for modifying (inserting, updating, and deleting) information in a database.

DDL

See database definition language.

deep ensemble

To combine multiple deep learning models for prediction. You can use deep ensembles to obtain a more accurate prediction or for estimating uncertainty in predictions.

deep learning

An ML subfield that uses multiple layers of artificial neural networks to identify mapping between input data and target variables of interest.

defense-in-depth

An information security approach in which a series of security mechanisms and controls are thoughtfully layered throughout a computer network to protect the confidentiality, integrity, and availability of the network and the data within. When you adopt this strategy on AWS, you add multiple controls at different layers of the AWS Organizations structure to help secure resources. For example, a defense-in-depth approach might combine multi-factor authentication, network segmentation, and encryption.

delegated administrator

In AWS Organizations, a compatible service can register an AWS member account to administer the organization's accounts and manage permissions for that service. This account is called the *delegated administrator* for that service. For more information and a list of compatible services, see Services that work with AWS Organizations in the AWS Organizations documentation.

deployment

The process of making an application, new features, or code fixes available in the target environment. Deployment involves implementing changes in a code base and then building and running that code base in the application's environments.

development environment

See environment.

detective control

A security control that is designed to detect, log, and alert after an event has occurred. These controls are a second line of defense, alerting you to security events that bypassed the preventative controls in place. For more information, see Detective controls in *Implementing security controls on AWS*.

development value stream mapping (DVSM)

A process used to identify and prioritize constraints that adversely affect speed and quality in a software development lifecycle. DVSM extends the value stream mapping process originally designed for lean manufacturing practices. It focuses on the steps and teams required to create and move value through the software development process.

digital twin

A virtual representation of a real-world system, such as a building, factory, industrial equipment, or production line. Digital twins support predictive maintenance, remote monitoring, and production optimization.

dimension table

In a star schema, a smaller table that contains data attributes about quantitative data in a fact table. Dimension table attributes are typically text fields or discrete numbers that behave like text. These attributes are commonly used for query constraining, filtering, and result set labeling.

disaster

An event that prevents a workload or system from fulfilling its business objectives in its primary deployed location. These events can be natural disasters, technical failures, or the result of human actions, such as unintentional misconfiguration or a malware attack.

disaster recovery (DR)

The strategy and process you use to minimize downtime and data loss caused by a disaster. For more information, see Disaster Recovery of Workloads on AWS: Recovery in the Cloud in the AWS Well-Architected Framework.

DML

See database manipulation language.

domain-driven design

An approach to developing a complex software system by connecting its components to evolving domains, or core business goals, that each component serves. This concept was introduced by Eric Evans in his book, *Domain-Driven Design: Tackling Complexity in the Heart of Software* (Boston: Addison-Wesley Professional, 2003). For information about how you can use domain-driven design with the strangler fig pattern, see Modernizing legacy Microsoft ASP.NET (ASMX) web services incrementally by using containers and Amazon API Gateway.

DR

See disaster recovery.

drift detection

Tracking deviations from a baselined configuration. For example, you can use AWS CloudFormation to detect drift in system resources, or you can use AWS Control Tower to detect changes in your landing zone that might affect compliance with governance requirements.

DVSM

See development value stream mapping.

E

EDA

See exploratory data analysis.

EDI

See electronic data interchange.

edge computing

The technology that increases the computing power for smart devices at the edges of an IoT network. When compared with cloud computing, edge computing can reduce communication latency and improve response time.

electronic data interchange (EDI)

The automated exchange of business documents between organizations. For more information, see What is Electronic Data Interchange.

encryption

A computing process that transforms plaintext data, which is human-readable, into ciphertext.

encryption key

A cryptographic string of randomized bits that is generated by an encryption algorithm. Keys can vary in length, and each key is designed to be unpredictable and unique.

endianness

The order in which bytes are stored in computer memory. Big-endian systems store the most significant byte first. Little-endian systems store the least significant byte first.

endpoint

See service endpoint.

endpoint service

A service that you can host in a virtual private cloud (VPC) to share with other users. You can create an endpoint service with AWS PrivateLink and grant permissions to other AWS accounts or to AWS Identity and Access Management (IAM) principals. These accounts or principals can connect to your endpoint service privately by creating interface VPC endpoints. For more

information, see Create an endpoint service in the Amazon Virtual Private Cloud (Amazon VPC) documentation.

enterprise resource planning (ERP)

A system that automates and manages key business processes (such as accounting, MES, and project management) for an enterprise.

envelope encryption

The process of encrypting an encryption key with another encryption key. For more information, see Envelope encryption in the AWS Key Management Service (AWS KMS) documentation.

environment

An instance of a running application. The following are common types of environments in cloud computing:

- development environment – An instance of a running application that is available only to the core team responsible for maintaining the application. Development environments are used to test changes before promoting them to upper environments. This type of environment is sometimes referred to as a *test environment*.
- lower environments – All development environments for an application, such as those used for initial builds and tests.
- production environment – An instance of a running application that end users can access. In a CI/CD pipeline, the production environment is the last deployment environment.
- upper environments – All environments that can be accessed by users other than the core development team. This can include a production environment, preproduction environments, and environments for user acceptance testing.

epic

In agile methodologies, functional categories that help organize and prioritize your work. Epics provide a high-level description of requirements and implementation tasks. For example, AWS CAF security epics include identity and access management, detective controls, infrastructure security, data protection, and incident response. For more information about epics in the AWS migration strategy, see the program implementation guide.

ERP

See enterprise resource planning.

exploratory data analysis (EDA)

The process of analyzing a dataset to understand its main characteristics. You collect or aggregate data and then perform initial investigations to find patterns, detect anomalies, and check assumptions. EDA is performed by calculating summary statistics and creating data visualizations.

F

fact table

The central table in a star schema. It stores quantitative data about business operations. Typically, a fact table contains two types of columns: those that contain measures and those that contain a foreign key to a dimension table.

fail fast

A philosophy that uses frequent and incremental testing to reduce the development lifecycle. It is a critical part of an agile approach.

fault isolation boundary

In the AWS Cloud, a boundary such as an Availability Zone, AWS Region, control plane, or data plane that limits the effect of a failure and helps improve the resilience of workloads. For more information, see AWS Fault Isolation Boundaries.

feature branch

See branch.

features

The input data that you use to make a prediction. For example, in a manufacturing context, features could be images that are periodically captured from the manufacturing line.

feature importance

How significant a feature is for a model's predictions. This is usually expressed as a numerical score that can be calculated through various techniques, such as Shapley Additive Explanations (SHAP) and integrated gradients. For more information, see Machine learning model interpretability with AWS.

feature transformation

To optimize data for the ML process, including enriching data with additional sources, scaling values, or extracting multiple sets of information from a single data field. This enables the ML model to benefit from the data. For example, if you break down the “2021-05-27 00:15:37” date into “2021”, “May”, “Thu”, and “15”, you can help the learning algorithm learn nuanced patterns associated with different data components.

few-shot prompting

Providing an LLM with a small number of examples that demonstrate the task and desired output before asking it to perform a similar task. This technique is an application of in-context learning, where models learn from examples (*shots*) that are embedded in prompts. Few-shot prompting can be effective for tasks that require specific formatting, reasoning, or domain knowledge. See also zero-shot prompting.

FGAC

See fine-grained access control.

fine-grained access control (FGAC)

The use of multiple conditions to allow or deny an access request.

flash-cut migration

A database migration method that uses continuous data replication through change data capture to migrate data in the shortest time possible, instead of using a phased approach. The objective is to keep downtime to a minimum.

FM

See foundation model.

foundation model (FM)

A large deep-learning neural network that has been training on massive datasets of generalized and unlabeled data. FMs are capable of performing a wide variety of general tasks, such as understanding language, generating text and images, and conversing in natural language. For more information, see What are Foundation Models.

G

generative AI

A subset of AI models that have been trained on large amounts of data and that can use a simple text prompt to create new content and artifacts, such as images, videos, text, and audio. For more information, see What is Generative AI.

geo blocking

See geographic restrictions.

geographic restrictions (geo blocking)

In Amazon CloudFront, an option to prevent users in specific countries from accessing content distributions. You can use an allow list or block list to specify approved and banned countries. For more information, see Restricting the geographic distribution of your content in the CloudFront documentation.

Gitflow workflow

An approach in which lower and upper environments use different branches in a source code repository. The Gitflow workflow is considered legacy, and the trunk-based workflow is the modern, preferred approach.

golden image

A snapshot of a system or software that is used as a template to deploy new instances of that system or software. For example, in manufacturing, a golden image can be used to provision software on multiple devices and helps improve speed, scalability, and productivity in device manufacturing operations.

greenfield strategy

The absence of existing infrastructure in a new environment. When adopting a greenfield strategy for a system architecture, you can select all new technologies without the restriction of compatibility with existing infrastructure, also known as brownfield. If you are expanding the existing infrastructure, you might blend brownfield and greenfield strategies.

guardrail

A high-level rule that helps govern resources, policies, and compliance across organizational units (OUs). *Preventive guardrails* enforce policies to ensure alignment to compliance standards. They are implemented by using service control policies and IAM permissions boundaries.

Detective guardrails detect policy violations and compliance issues, and generate alerts for remediation. They are implemented by using AWS Config, AWS Security Hub CSPM, Amazon GuardDuty, AWS Trusted Advisor, Amazon Inspector, and custom AWS Lambda checks.

H

HA

See high availability.

heterogeneous database migration

Migrating your source database to a target database that uses a different database engine (for example, Oracle to Amazon Aurora). Heterogeneous migration is typically part of a re-architecting effort, and converting the schema can be a complex task. AWS provides AWS SCT that helps with schema conversions.

high availability (HA)

The ability of a workload to operate continuously, without intervention, in the event of challenges or disasters. HA systems are designed to automatically fail over, consistently deliver high-quality performance, and handle different loads and failures with minimal performance impact.

historian modernization

An approach used to modernize and upgrade operational technology (OT) systems to better serve the needs of the manufacturing industry. A *historian* is a type of database that is used to collect and store data from various sources in a factory.

holdout data

A portion of historical, labeled data that is withheld from a dataset that is used to train a machine learning model. You can use holdout data to evaluate the model performance by comparing the model predictions against the holdout data.

homogeneous database migration

Migrating your source database to a target database that shares the same database engine (for example, Microsoft SQL Server to Amazon RDS for SQL Server). Homogeneous migration is typically part of a rehosting or replatforming effort. You can use native database utilities to migrate the schema.

hot data

Data that is frequently accessed, such as real-time data or recent translational data. This data typically requires a high-performance storage tier or class to provide fast query responses.

hotfix

An urgent fix for a critical issue in a production environment. Due to its urgency, a hotfix is usually made outside of the typical DevOps release workflow.

hypercare period

Immediately following cutover, the period of time when a migration team manages and monitors the migrated applications in the cloud in order to address any issues. Typically, this period is 1–4 days in length. At the end of the hypercare period, the migration team typically transfers responsibility for the applications to the cloud operations team.

I

IaC

See infrastructure as code.

identity-based policy

A policy attached to one or more IAM principals that defines their permissions within the AWS Cloud environment.

idle application

An application that has an average CPU and memory usage between 5 and 20 percent over a period of 90 days. In a migration project, it is common to retire these applications or retain them on premises.

IIoT

See industrial Internet of Things.

immutable infrastructure

A model that deploys new infrastructure for production workloads instead of updating, patching, or modifying the existing infrastructure. Immutable infrastructures are inherently more consistent, reliable, and predictable than mutable infrastructure. For more information, see the Deploy using immutable infrastructure best practice in the AWS Well-Architected Framework.

inbound (ingress) VPC

In an AWS multi-account architecture, a VPC that accepts, inspects, and routes network connections from outside an application. The AWS Security Reference Architecture recommends setting up your Network account with inbound, outbound, and inspection VPCs to protect the two-way interface between your application and the broader internet.

incremental migration

A cutover strategy in which you migrate your application in small parts instead of performing a single, full cutover. For example, you might move only a few microservices or users to the new system initially. After you verify that everything is working properly, you can incrementally move additional microservices or users until you can decommission your legacy system. This strategy reduces the risks associated with large migrations.

Industry 4.0

A term that was introduced by Klaus Schwab in 2016 to refer to the modernization of manufacturing processes through advances in connectivity, real-time data, automation, analytics, and AI/ML.

infrastructure

All of the resources and assets contained within an application's environment.

infrastructure as code (IaC)

The process of provisioning and managing an application's infrastructure through a set of configuration files. IaC is designed to help you centralize infrastructure management, standardize resources, and scale quickly so that new environments are repeatable, reliable, and consistent.

industrial Internet of Things (IIoT)

The use of internet-connected sensors and devices in the industrial sectors, such as manufacturing, energy, automotive, healthcare, life sciences, and agriculture. For more information, see Building an industrial Internet of Things (IIoT) digital transformation strategy.

inspection VPC

In an AWS multi-account architecture, a centralized VPC that manages inspections of network traffic between VPCs (in the same or different AWS Regions), the internet, and on-premises networks. The AWS Security Reference Architecture recommends setting up your Network account with inbound, outbound, and inspection VPCs to protect the two-way interface between your application and the broader internet.

Internet of Things (IoT)

The network of connected physical objects with embedded sensors or processors that communicate with other devices and systems through the internet or over a local communication network. For more information, see What is IoT?

interpretability

A characteristic of a machine learning model that describes the degree to which a human can understand how the model's predictions depend on its inputs. For more information, see Machine learning model interpretability with AWS.

IoT

See Internet of Things.

IT information library (ITIL)

A set of best practices for delivering IT services and aligning these services with business requirements. ITIL provides the foundation for ITSM.

IT service management (ITSM)

Activities associated with designing, implementing, managing, and supporting IT services for an organization. For information about integrating cloud operations with ITSM tools, see the operations integration guide.

ITIL

See IT information library.

ITSM

See IT service management.

L

label-based access control (LBAC)

An implementation of mandatory access control (MAC) where the users and the data itself are each explicitly assigned a security label value. The intersection between the user security label and data security label determines which rows and columns can be seen by the user.

landing zone

A landing zone is a well-architected, multi-account AWS environment that is scalable and secure. This is a starting point from which your organizations can quickly launch and deploy workloads and applications with confidence in their security and infrastructure environment. For more information about landing zones, see Setting up a secure and scalable multi-account AWS environment.

large language model (LLM)

A deep learning AI model that is pretrained on a vast amount of data. An LLM can perform multiple tasks, such as answering questions, summarizing documents, translating text into other languages, and completing sentences. For more information, see What are LLMs.

large migration

A migration of 300 or more servers.

LBAC

See label-based access control.

least privilege

The security best practice of granting the minimum permissions required to perform a task. For more information, see Apply least-privilege permissions in the IAM documentation.

lift and shift

See 7 Rs.

little-endian system

A system that stores the least significant byte first. See also endianness.

LLM

See large language model.

lower environments

See environment.

M

machine learning (ML)

A type of artificial intelligence that uses algorithms and techniques for pattern recognition and learning. ML analyzes and learns from recorded data, such as Internet of Things (IoT) data, to generate a statistical model based on patterns. For more information, see Machine Learning.

main branch

See branch.

malware

Software that is designed to compromise computer security or privacy. Malware might disrupt computer systems, leak sensitive information, or gain unauthorized access. Examples of malware include viruses, worms, ransomware, Trojan horses, spyware, and keyloggers.

managed services

AWS services for which AWS operates the infrastructure layer, the operating system, and platforms, and you access the endpoints to store and retrieve data. Amazon Simple Storage Service (Amazon S3) and Amazon DynamoDB are examples of managed services. These are also known as *abstracted services*.

manufacturing execution system (MES)

A software system for tracking, monitoring, documenting, and controlling production processes that convert raw materials to finished products on the shop floor.

MAP

See Migration Acceleration Program.

mechanism

A complete process in which you create a tool, drive adoption of the tool, and then inspect the results in order to make adjustments. A mechanism is a cycle that reinforces and improves itself as it operates. For more information, see Building mechanisms in the AWS Well-Architected Framework.

member account

All AWS accounts other than the management account that are part of an organization in AWS Organizations. An account can be a member of only one organization at a time.

MES

See manufacturing execution system.

Message Queuing Telemetry Transport (MQTT)

A lightweight, machine-to-machine (M2M) communication protocol, based on the publish/subscribe pattern, for resource-constrained IoT devices.

microservice

A small, independent service that communicates over well-defined APIs and is typically owned by small, self-contained teams. For example, an insurance system might include microservices that map to business capabilities, such as sales or marketing, or subdomains, such as purchasing, claims, or analytics. The benefits of microservices include agility, flexible scaling, easy deployment, reusable code, and resilience. For more information, see Integrating microservices by using AWS serverless services.

microservices architecture

An approach to building an application with independent components that run each application process as a microservice. These microservices communicate through a well-defined interface by using lightweight APIs. Each microservice in this architecture can be updated, deployed, and scaled to meet demand for specific functions of an application. For more information, see Implementing microservices on AWS.

Migration Acceleration Program (MAP)

An AWS program that provides consulting support, training, and services to help organizations build a strong operational foundation for moving to the cloud, and to help offset the initial cost of migrations. MAP includes a migration methodology for executing legacy migrations in a methodical way and a set of tools to automate and accelerate common migration scenarios.

migration at scale

The process of moving the majority of the application portfolio to the cloud in waves, with more applications moved at a faster rate in each wave. This phase uses the best practices and lessons learned from the earlier phases to implement a *migration factory* of teams, tools, and processes to streamline the migration of workloads through automation and agile delivery. This is the third phase of the AWS migration strategy.

migration factory

Cross-functional teams that streamline the migration of workloads through automated, agile approaches. Migration factory teams typically include operations, business analysts and owners,

migration engineers, developers, and DevOps professionals working in sprints. Between 20 and 50 percent of an enterprise application portfolio consists of repeated patterns that can be optimized by a factory approach. For more information, see the discussion of migration factories and the Cloud Migration Factory guide in this content set.

migration metadata

The information about the application and server that is needed to complete the migration. Each migration pattern requires a different set of migration metadata. Examples of migration metadata include the target subnet, security group, and AWS account.

migration pattern

A repeatable migration task that details the migration strategy, the migration destination, and the migration application or service used. Example: Rehost migration to Amazon EC2 with AWS Application Migration Service.

Migration Portfolio Assessment (MPA)

An online tool that provides information for validating the business case for migrating to the AWS Cloud. MPA provides detailed portfolio assessment (server right-sizing, pricing, TCO comparisons, migration cost analysis) as well as migration planning (application data analysis and data collection, application grouping, migration prioritization, and wave planning). The MPA tool (requires login) is available free of charge to all AWS consultants and APN Partner consultants.

Migration Readiness Assessment (MRA)

The process of gaining insights about an organization's cloud readiness status, identifying strengths and weaknesses, and building an action plan to close identified gaps, using the AWS CAF. For more information, see the migration readiness guide. MRA is the first phase of the AWS migration strategy.

migration strategy

The approach used to migrate a workload to the AWS Cloud. For more information, see the 7 Rs entry in this glossary and see Mobilize your organization to accelerate large-scale migrations.

ML

See machine learning.

modernization

Transforming an outdated (legacy or monolithic) application and its infrastructure into an agile, elastic, and highly available system in the cloud to reduce costs, gain efficiencies, and take advantage of innovations. For more information, see Strategy for modernizing applications in the AWS Cloud.

modernization readiness assessment

An evaluation that helps determine the modernization readiness of an organization's applications; identifies benefits, risks, and dependencies; and determines how well the organization can support the future state of those applications. The outcome of the assessment is a blueprint of the target architecture, a roadmap that details development phases and milestones for the modernization process, and an action plan for addressing identified gaps. For more information, see Evaluating modernization readiness for applications in the AWS Cloud.

monolithic applications (monoliths)

Applications that run as a single service with tightly coupled processes. Monolithic applications have several drawbacks. If one application feature experiences a spike in demand, the entire architecture must be scaled. Adding or improving a monolithic application's features also becomes more complex when the code base grows. To address these issues, you can use a microservices architecture. For more information, see Decomposing monoliths into microservices.

MPA

See Migration Portfolio Assessment.

MQTT

See Message Queuing Telemetry Transport.

multiclass classification

A process that helps generate predictions for multiple classes (predicting one of more than two outcomes). For example, an ML model might ask "Is this product a book, car, or phone?" or "Which product category is most interesting to this customer?"

mutable infrastructure

A model that updates and modifies the existing infrastructure for production workloads. For improved consistency, reliability, and predictability, the AWS Well-Architected Framework recommends the use of immutable infrastructure as a best practice.

O

OAC

See origin access control.

OAI

See origin access identity.

OCM

See organizational change management.

offline migration

A migration method in which the source workload is taken down during the migration process. This method involves extended downtime and is typically used for small, non-critical workloads.

OI

See operations integration.

OLA

See operational-level agreement.

online migration

A migration method in which the source workload is copied to the target system without being taken offline. Applications that are connected to the workload can continue to function during the migration. This method involves zero to minimal downtime and is typically used for critical production workloads.

OPC-UA

See Open Process Communications - Unified Architecture.

Open Process Communications - Unified Architecture (OPC-UA)

A machine-to-machine (M2M) communication protocol for industrial automation. OPC-UA provides an interoperability standard with data encryption, authentication, and authorization schemes.

operational-level agreement (OLA)

An agreement that clarifies what functional IT groups promise to deliver to each other, to support a service-level agreement (SLA).

operational readiness review (ORR)

A checklist of questions and associated best practices that help you understand, evaluate, prevent, or reduce the scope of incidents and possible failures. For more information, see Operational Readiness Reviews (ORR) in the AWS Well-Architected Framework.

operational technology (OT)

Hardware and software systems that work with the physical environment to control industrial operations, equipment, and infrastructure. In manufacturing, the integration of OT and information technology (IT) systems is a key focus for Industry 4.0 transformations.

operations integration (OI)

The process of modernizing operations in the cloud, which involves readiness planning, automation, and integration. For more information, see the operations integration guide.

organization trail

A trail that's created by AWS CloudTrail that logs all events for all AWS accounts in an organization in AWS Organizations. This trail is created in each AWS account that's part of the organization and tracks the activity in each account. For more information, see Creating a trail for an organization in the CloudTrail documentation.

organizational change management (OCM)

A framework for managing major, disruptive business transformations from a people, culture, and leadership perspective. OCM helps organizations prepare for, and transition to, new systems and strategies by accelerating change adoption, addressing transitional issues, and driving cultural and organizational changes. In the AWS migration strategy, this framework is called *people acceleration*, because of the speed of change required in cloud adoption projects. For more information, see the OCM guide.

origin access control (OAC)

In CloudFront, an enhanced option for restricting access to secure your Amazon Simple Storage Service (Amazon S3) content. OAC supports all S3 buckets in all AWS Regions, server-side encryption with AWS KMS (SSE-KMS), and dynamic PUT and DELETE requests to the S3 bucket.

origin access identity (OAI)

In CloudFront, an option for restricting access to secure your Amazon S3 content. When you use OAI, CloudFront creates a principal that Amazon S3 can authenticate with. Authenticated principals can access content in an S3 bucket only through a specific CloudFront distribution. See also OAC, which provides more granular and enhanced access control.

ORR

See operational readiness review.

OT

See operational technology.

outbound (egress) VPC

In an AWS multi-account architecture, a VPC that handles network connections that are initiated from within an application. The AWS Security Reference Architecture recommends setting up your Network account with inbound, outbound, and inspection VPCs to protect the two-way interface between your application and the broader internet.

P

permissions boundary

An IAM management policy that is attached to IAM principals to set the maximum permissions that the user or role can have. For more information, see Permissions boundaries in the IAM documentation.

personally identifiable information (PII)

Information that, when viewed directly or paired with other related data, can be used to reasonably infer the identity of an individual. Examples of PII include names, addresses, and contact information.

PII

See personally identifiable information.

playbook

A set of predefined steps that capture the work associated with migrations, such as delivering core operations functions in the cloud. A playbook can take the form of scripts, automated runbooks, or a summary of processes or steps required to operate your modernized environment.

PLC

See programmable logic controller.

PLM

See product lifecycle management.

policy

An object that can define permissions (see identity-based policy), specify access conditions (see resource-based policy), or define the maximum permissions for all accounts in an organization in AWS Organizations (see service control policy).

polyglot persistence

Independently choosing a microservice's data storage technology based on data access patterns and other requirements. If your microservices have the same data storage technology, they can encounter implementation challenges or experience poor performance. Microservices are more easily implemented and achieve better performance and scalability if they use the data store best adapted to their requirements.

portfolio assessment

A process of discovering, analyzing, and prioritizing the application portfolio in order to plan the migration. For more information, see Evaluating migration readiness.

predicate

A query condition that returns `true` or `false`, commonly located in a `WHERE` clause.

predicate pushdown

A database query optimization technique that filters the data in the query before transfer. This reduces the amount of data that must be retrieved and processed from the relational database, and it improves query performance.

preventative control

A security control that is designed to prevent an event from occurring. These controls are a first line of defense to help prevent unauthorized access or unwanted changes to your network. For more information, see Preventative controls in *Implementing security controls on AWS*.

principal

An entity in AWS that can perform actions and access resources. This entity is typically a root user for an AWS account, an IAM role, or a user. For more information, see *Principal* in Roles terms and concepts in the IAM documentation.

privacy by design

A system engineering approach that takes privacy into account through the whole development process.

private hosted zones

A container that holds information about how you want Amazon Route 53 to respond to DNS queries for a domain and its subdomains within one or more VPCs. For more information, see Working with private hosted zones in the Route 53 documentation.

proactive control

A security control designed to prevent the deployment of noncompliant resources. These controls scan resources before they are provisioned. If the resource is not compliant with the control, then it isn't provisioned. For more information, see the Controls reference guide in the AWS Control Tower documentation and see Proactive controls in *Implementing security controls on AWS*.

product lifecycle management (PLM)

The management of data and processes for a product throughout its entire lifecycle, from design, development, and launch, through growth and maturity, to decline and removal.

production environment

See environment.

programmable logic controller (PLC)

In manufacturing, a highly reliable, adaptable computer that monitors machines and automates manufacturing processes.

prompt chaining

Using the output of one LLM prompt as the input for the next prompt to generate better responses. This technique is used to break down a complex task into subtasks, or to iteratively refine or expand a preliminary response. It helps improve the accuracy and relevance of a model's responses and allows for more granular, personalized results.

pseudonymization

The process of replacing personal identifiers in a dataset with placeholder values. Pseudonymization can help protect personal privacy. Pseudonymized data is still considered to be personal data.

publish/subscribe (pub/sub)

A pattern that enables asynchronous communications among microservices to improve scalability and responsiveness. For example, in a microservices-based MES, a microservice can publish event messages to a channel that other microservices can subscribe to. The system can add new microservices without changing the publishing service.

Q

query plan

A series of steps, like instructions, that are used to access the data in a SQL relational database system.

query plan regression

When a database service optimizer chooses a less optimal plan than it did before a given change to the database environment. This can be caused by changes to statistics, constraints, environment settings, query parameter bindings, and updates to the database engine.

R

RACI matrix

See responsible, accountable, consulted, informed (RACI).

RAG

See Retrieval Augmented Generation.

ransomware

A malicious software that is designed to block access to a computer system or data until a payment is made.

RASCI matrix

See responsible, accountable, consulted, informed (RACI).

RCAC

See row and column access control.

read replica

A copy of a database that's used for read-only purposes. You can route queries to the read replica to reduce the load on your primary database.

re-architect

See 7 Rs.

recovery point objective (RPO)

The maximum acceptable amount of time since the last data recovery point. This determines what is considered an acceptable loss of data between the last recovery point and the interruption of service.

recovery time objective (RTO)

The maximum acceptable delay between the interruption of service and restoration of service.

refactor

See 7 Rs.

Region

A collection of AWS resources in a geographic area. Each AWS Region is isolated and independent of the others to provide fault tolerance, stability, and resilience. For more information, see Specify which AWS Regions your account can use.

regression

An ML technique that predicts a numeric value. For example, to solve the problem of "What price will this house sell for?" an ML model could use a linear regression model to predict a house's sale price based on known facts about the house (for example, the square footage).

rehost

See 7 Rs.

release

In a deployment process, the act of promoting changes to a production environment.

relocate

See 7 Rs.

replatform

See 7 Rs.

repurchase

See 7 Rs.

resiliency

An application's ability to resist or recover from disruptions. High availability and disaster recovery are common considerations when planning for resiliency in the AWS Cloud. For more information, see AWS Cloud Resilience.

resource-based policy

A policy attached to a resource, such as an Amazon S3 bucket, an endpoint, or an encryption key. This type of policy specifies which principals are allowed access, supported actions, and any other conditions that must be met.

responsible, accountable, consulted, informed (RACI) matrix

A matrix that defines the roles and responsibilities for all parties involved in migration activities and cloud operations. The matrix name is derived from the responsibility types defined in the matrix: responsible (R), accountable (A), consulted (C), and informed (I). The support (S) type is optional. If you include support, the matrix is called a *RASCI matrix*, and if you exclude it, it's called a *RACI matrix*.

responsive control

A security control that is designed to drive remediation of adverse events or deviations from your security baseline. For more information, see Responsive controls in *Implementing security controls on AWS*.

retain

See 7 Rs.

retire

See 7 Rs.

Retrieval Augmented Generation (RAG)

A generative AI technology in which an LLM references an authoritative data source that is outside of its training data sources before generating a response. For example, a RAG model might perform a semantic search of an organization's knowledge base or custom data. For more information, see What is RAG.

rotation

The process of periodically updating a secret to make it more difficult for an attacker to access the credentials.

row and column access control (RCAC)

The use of basic, flexible SQL expressions that have defined access rules. RCAC consists of row permissions and column masks.

RPO

See recovery point objective.

RTO

See recovery time objective.

runbook

A set of manual or automated procedures required to perform a specific task. These are typically built to streamline repetitive operations or procedures with high error rates.

S

SAML 2.0

An open standard that many identity providers (IdPs) use. This feature enables federated single sign-on (SSO), so users can log into the AWS Management Console or call the AWS API operations without you having to create user in IAM for everyone in your organization. For more information about SAML 2.0-based federation, see About SAML 2.0-based federation in the IAM documentation.

SCADA

See supervisory control and data acquisition.

SCP

See service control policy.

secret

In AWS Secrets Manager, confidential or restricted information, such as a password or user credentials, that you store in encrypted form. It consists of the secret value and its metadata.

The secret value can be binary, a single string, or multiple strings. For more information, see What's in a Secrets Manager secret? in the Secrets Manager documentation.

security by design

A system engineering approach that takes security into account through the whole development process.

security control

A technical or administrative guardrail that prevents, detects, or reduces the ability of a threat actor to exploit a security vulnerability. There are four primary types of security controls: preventative, detective, responsive, and proactive.

security hardening

The process of reducing the attack surface to make it more resistant to attacks. This can include actions such as removing resources that are no longer needed, implementing the security best practice of granting least privilege, or deactivating unnecessary features in configuration files.

security information and event management (SIEM) system

Tools and services that combine security information management (SIM) and security event management (SEM) systems. A SIEM system collects, monitors, and analyzes data from servers, networks, devices, and other sources to detect threats and security breaches, and to generate alerts.

security response automation

A predefined and programmed action that is designed to automatically respond to or remediate a security event. These automations serve as detective or responsive security controls that help you implement AWS security best practices. Examples of automated response actions include modifying a VPC security group, patching an Amazon EC2 instance, or rotating credentials.

server-side encryption

Encryption of data at its destination, by the AWS service that receives it.

service control policy (SCP)

A policy that provides centralized control over permissions for all accounts in an organization in AWS Organizations. SCPs define guardrails or set limits on actions that an administrator can delegate to users or roles. You can use SCPs as allow lists or deny lists, to specify which services or actions are permitted or prohibited. For more information, see Service control policies in the AWS Organizations documentation.

service endpoint

The URL of the entry point for an AWS service. You can use the endpoint to connect programmatically to the target service. For more information, see AWS service endpoints in *AWS General Reference*.

service-level agreement (SLA)

An agreement that clarifies what an IT team promises to deliver to their customers, such as service uptime and performance.

service-level indicator (SLI)

A measurement of a performance aspect of a service, such as its error rate, availability, or throughput.

service-level objective (SLO)

A target metric that represents the health of a service, as measured by a service-level indicator.

shared responsibility model

A model describing the responsibility you share with AWS for cloud security and compliance. AWS is responsible for security *of* the cloud, whereas you are responsible for security *in* the cloud. For more information, see Shared responsibility model.

SIEM

See security information and event management system.

single point of failure (SPOF)

A failure in a single, critical component of an application that can disrupt the system.

SLA

See service-level agreement.

SLI

See service-level indicator.

SLO

See service-level objective.

split-and-seed model

A pattern for scaling and accelerating modernization projects. As new features and product releases are defined, the core team splits up to create new product teams. This helps scale your

organization's capabilities and services, improves developer productivity, and supports rapid innovation. For more information, see Phased approach to modernizing applications in the AWS Cloud.

SPOF

See single point of failure.

star schema

A database organizational structure that uses one large fact table to store transactional or measured data and uses one or more smaller dimensional tables to store data attributes. This structure is designed for use in a data warehouse or for business intelligence purposes.

strangler fig pattern

An approach to modernizing monolithic systems by incrementally rewriting and replacing system functionality until the legacy system can be decommissioned. This pattern uses the analogy of a fig vine that grows into an established tree and eventually overcomes and replaces its host. The pattern was introduced by Martin Fowler as a way to manage risk when rewriting monolithic systems. For an example of how to apply this pattern, see Modernizing legacy Microsoft ASP.NET (ASMX) web services incrementally by using containers and Amazon API Gateway.

subnet

A range of IP addresses in your VPC. A subnet must reside in a single Availability Zone.

supervisory control and data acquisition (SCADA)

In manufacturing, a system that uses hardware and software to monitor physical assets and production operations.

symmetric encryption

An encryption algorithm that uses the same key to encrypt and decrypt the data.

synthetic testing

Testing a system in a way that simulates user interactions to detect potential issues or to monitor performance. You can use Amazon CloudWatch Synthetics to create these tests.

system prompt

A technique for providing context, instructions, or guidelines to an LLM to direct its behavior. System prompts help set context and establish rules for interactions with users.

T

tags

Key-value pairs that act as metadata for organizing your AWS resources. Tags can help you manage, identify, organize, search for, and filter resources. For more information, see Tagging your AWS resources.

target variable

The value that you are trying to predict in supervised ML. This is also referred to as an *outcome variable*. For example, in a manufacturing setting the target variable could be a product defect.

task list

A tool that is used to track progress through a runbook. A task list contains an overview of the runbook and a list of general tasks to be completed. For each general task, it includes the estimated amount of time required, the owner, and the progress.

test environment

See environment.

training

To provide data for your ML model to learn from. The training data must contain the correct answer. The learning algorithm finds patterns in the training data that map the input data attributes to the target (the answer that you want to predict). It outputs an ML model that captures these patterns. You can then use the ML model to make predictions on new data for which you don't know the target.

transit gateway

A network transit hub that you can use to interconnect your VPCs and on-premises networks. For more information, see What is a transit gateway in the AWS Transit Gateway documentation.

trunk-based workflow

An approach in which developers build and test features locally in a feature branch and then merge those changes into the main branch. The main branch is then built to the development, preproduction, and production environments, sequentially.

trusted access

Granting permissions to a service that you specify to perform tasks in your organization in AWS Organizations and in its accounts on your behalf. The trusted service creates a service-linked role in each account, when that role is needed, to perform management tasks for you. For more information, see Using AWS Organizations with other AWS services in the AWS Organizations documentation.

tuning

To change aspects of your training process to improve the ML model's accuracy. For example, you can train the ML model by generating a labeling set, adding labels, and then repeating these steps several times under different settings to optimize the model.

two-pizza team

A small DevOps team that you can feed with two pizzas. A two-pizza team size ensures the best possible opportunity for collaboration in software development.

U

uncertainty

A concept that refers to imprecise, incomplete, or unknown information that can undermine the reliability of predictive ML models. There are two types of uncertainty: *Epistemic uncertainty* is caused by limited, incomplete data, whereas *aleatoric uncertainty* is caused by the noise and randomness inherent in the data.

undifferentiated tasks

Also known as *heavy lifting*, work that is necessary to create and operate an application but that doesn't provide direct value to the end user or provide competitive advantage. Examples of undifferentiated tasks include procurement, maintenance, and capacity planning.

upper environments

See environment.

V

vacuuming

A database maintenance operation that involves cleaning up after incremental updates to reclaim storage and improve performance.

version control

Processes and tools that track changes, such as changes to source code in a repository.

VPC peering

A connection between two VPCs that allows you to route traffic by using private IP addresses. For more information, see What is VPC peering in the Amazon VPC documentation.

vulnerability

A software or hardware flaw that compromises the security of the system.

W

warm cache

A buffer cache that contains current, relevant data that is frequently accessed. The database instance can read from the buffer cache, which is faster than reading from the main memory or disk.

warm data

Data that is infrequently accessed. When querying this kind of data, moderately slow queries are typically acceptable.

window function

A SQL function that performs a calculation on a group of rows that relate in some way to the current record. Window functions are useful for processing tasks, such as calculating a moving average or accessing the value of rows based on the relative position of the current row.

workload

A collection of resources and code that delivers business value, such as a customer-facing application or backend process.

workstream

Functional groups in a migration project that are responsible for a specific set of tasks. Each workstream is independent but supports the other workstreams in the project. For example, the portfolio workstream is responsible for prioritizing applications, wave planning, and collecting migration metadata. The portfolio workstream delivers these assets to the migration workstream, which then migrates the servers and applications.

WORM

See write once, read many.

WQF

See AWS Workload Qualification Framework.

write once, read many (WORM)

A storage model that writes data a single time and prevents the data from being deleted or modified. Authorized users can read the data as many times as needed, but they cannot change it. This data storage infrastructure is considered immutable.

Z

zero-day exploit

An attack, typically malware, that takes advantage of a zero-day vulnerability.

zero-day vulnerability

An unmitigated flaw or vulnerability in a production system. Threat actors can use this type of vulnerability to attack the system. Developers frequently become aware of the vulnerability as a result of the attack.

zero-shot prompting

Providing an LLM with instructions for performing a task but no examples (*shots*) that can help guide it. The LLM must use its pre-trained knowledge to handle the task. The effectiveness of zero-shot prompting depends on the complexity of the task and the quality of the prompt. See also few-shot prompting.

zombie application

An application that has an average CPU and memory usage below 5 percent. In a migration project, it is common to retire these applications.