

# Planning for cloud

*How enterprise architecture management can help drive your IT transition*



## Assessing cloud adoption strategies

The desire for growth and innovation is driving more and more organizations to cloud computing. There can be tremendous benefits to moving business processes, applications, data and IT resources into a cloud-based model, including cost reduction, increased availability, standardization and modernization. Cloud has the capability to transform technology and business processes, giving you new ways to address business objectives. For instance, remember when WiFi was introduced? It was considered a revolutionary improvement to wired networks. But now even more innovative new services are being introduced that weren't possible before. Like adopting most new technologies, however, the first step can be the most difficult—and the most important.

## Cloud questions and answers

Implementing cloud solutions raises a host of questions around security, risk, system interdependence, functionality and performance. There is not necessarily one right answer to designing a cloud model. Organizations may consider shifting existing capabilities to a cloud platform or creating new capabilities. The cloud may be designed to focus on an organization's internal services, to allow collaboration with partners or to be publicly accessible. It may also be possible to create a private/public hybrid solution that improves services for internal and external stakeholders.

## Creating a view of the enterprise

To create a strategic plan for and to execute cloud deployment, organizations need a shared view of the current business and IT landscape—the enterprise architecture. Management needs a view that combines strategy, business architecture, information systems and technology domains to analyze proposed changes and prioritize projects that drive the most value to the business

with the least risk and investment. Enterprise architecture management creates an understanding of existing infrastructures, applications, processes and information. It allows further understanding of the effect of changing parts of the enterprise that creates a picture of how the enterprise may look. From this viewpoint, a road map can be built that helps organizations determine how to get from their current state to their future, cloud-enabled state. Enterprise architecture can help you identify the best workloads to move to the cloud—and the best time to move them. Enterprise architecture also becomes a change management platform that helps maintain cloud's effectiveness and alignment to business requirements over time.

This white paper will identify key best practices required to assess cloud readiness, develop adoption strategies and identify business entry points through enterprise architecture management.

## Building the strategic framework for cloud deployment

The planning process for cloud can be approached from one or both of two directions. The first involves the enhancement of technology: existing infrastructure can be upgraded to a virtual, cloud-based infrastructure, or existing local services can be migrated to the cloud. In the other approach, the strategic intent of the business drives the implementation of cloud as a means to offer new services.

## Leveraging existing investments through cloud

In the first approach, impact analysis is needed to establish the effect of removing or upgrading a piece of the infrastructure. For instance, the IT department may wish to consider replacing aging servers with virtual, cloud-provisioned machines. Using enterprise architecture practices, such as mapping the

applications that run on those servers, you can better understand the process effects of removing those servers by identifying dependencies and asking key questions:

- Which other applications communicate with these applications?
- Which processes do these applications support?
- Are those processes business critical?
- What are the consequences to the business if the cloud infrastructure becomes temporarily unavailable?

Similarly, enterprise architecture can reduce risks by helping you to understand which applications use which information. It helps identify the sensitivity of the information and the risk to the business if the information was lost or accessed by unauthorized parties. If information has specific regulatory requirements around data storage, enterprise architecture can help you reduce your regulatory risk by helping you ensure that the data is stored appropriately in the cloud.

Enterprise architecture also helps you understand which users need access to applications and services so you can make informed decisions regarding your cloud. If those users don't have Internet connectivity, then cloud-based services may not work for them. Or if too many services and users will use your cloud services, you may need to increase your bandwidth or risk performance issues.

### Implementing new services through cloud

In the second approach, the enterprise architecture process begins by capturing the mission, goals, strategies and tactics guiding the business. Then, organizations must model what systems and applications they have to produce a consolidated view of the current business state. Analyzed against the backdrop of

business objectives, the organization can create a model of the desired future state. The comparison of the two models becomes a high-level view of the gap between the current state and the desired state. It takes into account several business variables that must be considered when evaluating cloud investment options.

With the existing and future infrastructure modeled, organizations can visualize and analyze relationships and measure and compare the value of different initiatives against business objectives. This analysis can help maximize limited resources, improve time to market for new functionality and give IT organizations a valuable tool in communicating the effects of deploying cloud across the organization.

Enterprise architecture includes key data around cost, risk and functionality so that organizations can begin to evaluate whether cloud will help meet business objectives. Cloud may be able to reduce costs for certain services. Enterprise architecture can be utilized to identify high-cost areas. Cloud might increase security risks around data. Enterprise architecture helps identify which data might be at risk. Cloud can improve overall capabilities and availability or create new functionality. Enterprise architecture can identify underperforming systems and can help organizations see new opportunities.

Cloud may not be good for all of an organization's services. This analysis will help identify which services would benefit from cloud and which services are poor fits for cloud. Among the positive fits for cloud, organizations can help determine which cloud deployment options may have the most positive effects on business objectives. Without an enterprise architecture view, investments in cloud might be evaluated on a one-off basis without consideration of the interdependencies of business processes, applications and technology. This limited view can leave organizations with new cloud functionality that does not take advantage of all of its potential benefits.

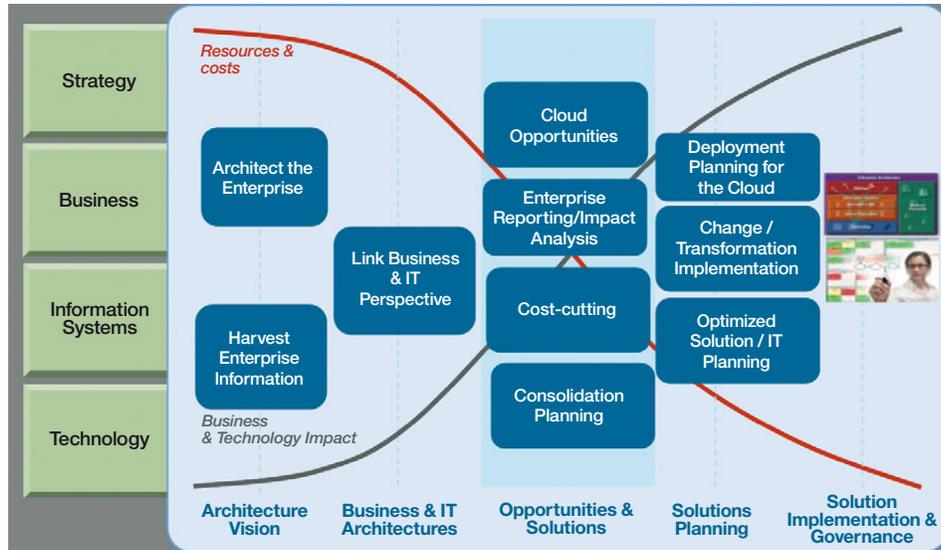


Figure 1: Enterprise architecture makes the results and deliverables of cloud relevant to all areas of the business.

### Using enterprise architecture to streamline business processes

All too often, organizations fall into the trap of formalizing old ways of doing things using new technology. Enterprise architecture helps materialize the value proposition of cloud computing by delivering the knowledge needed to perform tasks in new ways. Within the enterprise architecture, it's not just about mapping physical assets; it's also about depicting the human and automated functions the business carries out each day. Enterprise architecture management helps identify when tasks need to be done and who is accountable for their completion. It also helps determine what new processes are needed in a cloud environment and which old processes can be updated or replaced.

The visualization of enterprise architecture helps identify strengths and weaknesses of business processes. It can help determine what new processes are needed in a cloud deployment and which old processes can be replaced. Cloud providers can provide commonly known and used business functions, and enterprise architecture can help determine how common internal processes are. Organizations can then more easily identify which cloud services need to be managed within the organization and which can be outsourced to reduce costs or improve efficiency.

Improper planning for any IT initiative can create compliance or security risks. However, enterprise architecture can help identify those risks before the technology is implemented, giving you a greater chance to identify risks up front and come up with mitigation strategies. Enterprise architecture can help reduce risk within business processes by isolating the current risk profile and modeling a future state risk portfolio under a cloud deployment.

By their nature, cloud services can provide value to practically anyone, anywhere. Implementing cloud can create value in places you don't expect. The interconnectedness of virtual services can make it difficult to understand who is gaining benefit from what and to what extent. By determining who needs to do what, where and when—and which processes work well—enterprise architecture helps define dependencies across business users and applications that are delivered in a cloud as well as those that are not. Enterprise architecture helps you get a view of the direct value of cloud services and the ancillary value driven from the implementation of those services.

Inasmuch as enterprise architecture helps organizations depict and define the human and automated functions the business carries out, it helps reduce complexity in the long-term maintenance of your cloud by identifying applications and processes that can be eliminated or streamlined. The planning and maintenance of the cloud architecture is strengthened by enterprise architecture because it gives you the opportunity to manage organizational changes and the evolution of business objectives more effectively.

Enterprise architecture helps deliver more predictable cloud deployment outcomes by improving collaboration across business processes and systems. The improved predictability enables a greater ability to address business objectives and compliance needs, as well as a greater utilization of cloud functionality. And it can increase IT credibility within the organization by aligning expectations with a detailed work plan—a road map to cloud success.

## Understanding systems interdependencies through enterprise architecture

From a systems perspective, enterprise architecture puts order to the randomness of the discrete pieces being layered together to create the collaborative whole that can benefit from implementing cloud. The enterprise architecture process models key information systems including applications, data, software and services. It maps the interdependency of systems and data and isolates areas where cloud deployment could improve or jeopardize those systems.

Implementing cloud can replace unnecessary, redundant or obsolete systems. Enterprise architecture can identify opportunities for systems consolidation or highlight high-cost, low-business-value applications that can be outsourced to cloud-based providers. It can identify opportunities to reuse existing services in new ways to reduce cost. This optimization of resources can increase system availability and service capability.

Some cloud services may depend on non-cloud-based services. Some applications may rely on cloud while others need to be isolated. Enterprise architecture helps organizations understand the important linkages of their infrastructure. As data moves about the various systems, enterprise architecture can help organizations see what information is needed for business processes and how that data will be stored and moved. Enterprise architecture can measure the sensitivity of information and help ensure that only appropriate data is moved to the correct cloud to help reduce security risks.

Enterprise architecture also adds the perspective of time to the cloud deployment process. The enterprise architecture map can help determine the chronological dependencies of rolling out each new cloud component. Organizations can deploy their resources more efficiently by scaling cloud deployments to match human resource availability. All of which can help reduce costs, implementation errors and time to build.

## Optimizing technology through enterprise architecture

One of the strongest opportunities of cloud deployment may be the possibility of eliminating unnecessary, redundant or obsolete technology in the IT infrastructure. Enterprise architecture paints a clear picture of the organization's existing technology assets layered with data about asset costs and sunset dates. The process identifies what technologies will support the future cloud state, which assets can be reused and what assets may need to be added. With the chronological aspect of enterprise architecture, organizations can plan for future investment and prioritize new technology investments.

Linking this technological outlook, the services infrastructure and business process design against the strategic backdrop creates a detailed view of the organization's current state and future capabilities. This allows companies to have greater capabilities for analyzing and planning changes within the enterprise and for potentially minimizing the associated risk. Organizations can identify opportunities to cut costs by consolidating operations or optimizing technology investments. Enterprise architecture helps enable new cloud services that can transform businesses by creating value or opening new opportunities in the marketplace.

Many organizations have a complex enterprise architecture that can be difficult to understand, let alone manage. Today's processes, applications, systems and platforms have complex interdependencies and demand constant attention. Unless you can direct your attention and investments against your business objectives, then adding cloud to the mix can only increase your complexity and costs. Using enterprise architecture to plan for cloud improves your ability to take advantage of the real benefits of cloud to create successful, lasting business transformation.

## Using IBM Rational software for enterprise architecture management

IBM® Rational® enterprise architecture management software can help guide a successful transformation to cloud. The enterprise architecture management solution enables organizations to plan, control, streamline—and innovate. Rational software helps construct effective cloud solutions out of enterprise and business elements that may create new or updated elements that can be used in future projects. It also helps build an effective IT portfolio by identifying areas for consolidation and reuse, and unlocking operational budgets required to fund innovation.

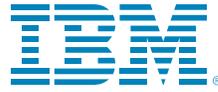
IBM also offers Rational software solutions for cloud computing that enable IT organizations to build, deliver and manage security-rich cloud services for software delivery. Rational software can enable organizations to leverage cloud computing in their development and test environments to support new and improved services to the business.



## For more information

To learn more about the IBM Rational suite of products to better understand your enterprise architecture as a means to implementing cloud computing, please contact your IBM marketing representative or IBM Business Partner, or visit the following website: [ibm.com/software/rational/cloud](http://ibm.com/software/rational/cloud)

Additionally, financing solutions from IBM Global Financing can enable effective cash management, protection from technology obsolescence, improved total cost of ownership and return on investment. Also, our Global Asset Recovery Services help address environmental concerns with new, more energy-efficient solutions. For more information on IBM Global Financing, visit: [ibm.com/financing](http://ibm.com/financing)



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