Transforming applications to cloud strategy and lessons learned

September 10, 2019
Cloud transformation trends are diving CIO’s IT strategy

Digital transformation

Multiple cloud providers are the new reality

70% of enterprises will adopt a multi-cloud strategy, up from less than 10 percent today.

The intricacies of evolving to hybrid IT

70% of heavy cloud users are pursing hybrid cloud over the next 24 months; 51 percent of cloud users engulfed by change, IT can’t keep up

Broker of services

73% of customers planning to run more than 25 percent of their workloads in hybrid environments, IT organizations need the tools to help them quickly transform to service providers

IDC, CloudView
Mandiant, M-Trends
Technology Business Research, Hybrid Cloud Customer Research
Gartner, IT Market Clock for Hybrid Infrastructure Services
Reduced risk, cost savings, higher quality, less down time, etc.

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<th>Challenge</th>
<th>Solution</th>
<th>Outcome</th>
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<td>Customer experience</td>
<td>Processes:</td>
<td>Improve time to value</td>
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<td></td>
<td>• Align to industry best practices</td>
<td>Increase velocity</td>
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<td></td>
<td>• Digital platforms and business models</td>
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<td>Time to value</td>
<td>Applications/ infrastructure:</td>
<td>Reduce risk and cost</td>
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<td>• Optimize existing applications/infrastructure</td>
<td>Enhance the mission</td>
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<td>• Industrialize automate standardize</td>
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<td>Cost optimization</td>
<td>Operations:</td>
<td>Align to mission</td>
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<td>• Improve DevOps</td>
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<td>• Align organization, tools and culture</td>
<td>Improve customer</td>
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<td>Services:</td>
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<td>• Seamless access to application services model and enterprise service</td>
<td>satisfaction</td>
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<td>Services anytime, anywhere</td>
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<td>Empower users</td>
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<td>Accelerate response</td>
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Court constituent focus

Processes:
- Align to industry best practices
- Digital platforms and business models

Applications/ infrastructure:
- Optimize existing applications/infrastructure
- Industrialize automate standardize

Operations:
- Improve DevOps
- Align organization, tools and culture

Services:
- Seamless access to application services model and enterprise service management
It is critical to clearly understand the key agency transformation needs

- Analyze current business and technology
- Develop transformation options and recommend solutions
- Provide an IT strategy and project roadmap that achieves these solutions
- Move my applications to a hybrid IT environment
Cloud transformation leads to a number of questions

- What goes and what stays?
- What goes into cloud? Which cloud?
- What needs to be transformed vs. simply moved?
- What methods do we use to transform/migrate?
- What tools do we use?
- What must be migrated together as a system?
- What remediation is required?
- How fast can we get there?
- How do we minimize impact on the business?
- How do we manage our services suppliers?
You must have a clear plan

<table>
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<th>How do I start to transform my applications?</th>
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<td><strong>Alignment</strong></td>
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<td>Have clear goals and support of business leaders, users, finance and IT</td>
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<td><strong>Current state</strong></td>
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<td>Have an understanding of dependencies and constraints in your current application workloads</td>
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<td><strong>Gaps and risks</strong></td>
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<td>Have documented challenges and risks that could affect budget, schedule, compliance, security, etc. and created mitigation plans</td>
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<td><strong>Future state</strong></td>
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<td>Have a clear written conception of what will be built</td>
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<td><strong>Roadmap</strong></td>
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<td>Have an action plan detailing resources, milestones and target dates</td>
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<td><strong>Business case</strong></td>
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<td>Have a clear understanding of costs, benefits and financial commitments</td>
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<td><strong>Innovation</strong></td>
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<td>Use a Agile/DevOps approach to accelerate results</td>
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![Diagram showing transformation strategy with options Re-factor, Re-architect, Rehost, and Replace]
What will cloud technology bring you?

**Replace data center**
- Focused on the infrastructure transformation
- Migration of workloads (application) as-is to limit migration costs
- The objective is to reduce costs by running in the cloud
- The datacenter is recreated in the cloud

**Cloud enable applications**
- Focus is on re-using existing digital assets (applications or functions within applications) to digitally support the business
- Application architecture may need to be changed to take full advantage of the cloud infrastructure available
- Cloud environment is developed around the application requirements for scalability, high availability and security

**Enhanced mission models**
- Provide an environment in which customer can quickly drive new agility and respond to business/mission changes, building on the existing digital assets
- Utilizes latest technology trends to improve agility (microservices, etc.)

**Cloud reduction**

**Mission agility**
Requires a supporting cloud transformation framework
Framework shortens path and reduces risk to transformation providing the ability to replicate across projects

Advise
Applications Transformation to Cloud (AT2C)

- Build awareness and understanding
  - Define application business and technical characteristics
  - Review business strategies/expectations
  - Assess application suitability to Hybrid IT
  - Rationalization portfolio and refine target architecture

- Establish initial target architecture
  - Define strategies for each application
  - Identify target landing zone
  - Establish waves of applications to be transformed

Transform

- On-site teams
- Agile/DevOps
  - Continuous development
  - Continuous integration
  - Continuous delivery
- Hybrid IT enablement
  - Waves

Manage

- Target
  - AWS
  - Azure
  - Traditional
  - MPC/VPC
  - Public Cloud (Other)
An accurate inventory of applications is critical for successful cloud transformation providing input into the roadmap and transformation execution plan.

Ensure you assess your current environment (apps and infrastructure) based on core mission and technical parameters including:

- **Mission**: Security, Workload Variability, Regulatory, Geography, Service Availability, Vendor Support, etc..
- **Technical**: Architecture, Infrastructure Compatibility, Performance, Interfaces, Cloud Suitability, etc..

Make available latest and most secure releases of application libraries and operating systems.

Standard platforms and software stacks provide catalog of “ready to work” landing zones.

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**Preparing for cloud**
Cloud migration success

- Understanding the technical tradeoff of using various cloud architecture options is essential to maximizing the benefit of moving to the cloud.
- Application migration decisions are based on a number of parameters like technology likeness, cost and risk of the overall migration project.
- Appropriate versions of COTS applications may not be available on the target cloud platform – also consider licensing.
- Significant cost savings can be achieved if application is refactored to take advantage of the cloud.
- Engineering analysis to "right-size" identified unexpected results—e.g. too much hardware, not enough throughput.
- Performance-sensitive applications require network bandwidth provisioning and firewalls between source and target data centers.
Enterprise cloud readiness

• Establish a **governance** model that enables cloud transformation strategy

• Take an **enterprise** view on all cloud transformation projects – think integrated architecture and solutions

• Define **platform** standards (applications, compute, integration, network, storage, etc.) and move toward **ruthless** enforcement

• Focus on **workload isolation** through abstraction of compute, storage and network (avoid custom platforms, direct-attached storage, etc.)

• Move toward DevOps **automated provisioning** via DevOps automation of platforms versus custom scripting

• Create a **security model** that focuses simplified authentication using standard services
Organization’s cloud culture transition

- “Resistance to change” and “security concerns”, may result in the fear of adopting cloud - requiring cultural shift
- Change in skills are necessary - outdated, bureaucratic ways of working must be avoided when moving to the cloud
- “Effective cloud organizational transformation” requires focused cloud transformation training program required to reskill current employees- coupled with hiring cloud experts
- Need to drive organization value and advance learning through certifications and real-life business application
- Adoption of at least 10 percent of the organization is required to make cultural shift take hold and accelerate original transformations

When it comes to cloud adoption, the biggest challenge isn't technology – It's the people and processes that must change and adapt. This takes time, limiting the effectiveness of cloud adoption. Forbes Technology Council, 2017
Example solution of mission-critical application successfully migrated to the cloud

**Business needs:**
- Strategically move a mission-critical application system to the cloud to reduce cost and increase agility
- Support increasing number of functional changes by enabling more frequent releases
- Modernize legacy applications to enhance security

**Perspecta solution:**
- Migrated application system to the cloud with an accelerated software delivery stream
- Re-architected application system and instituted agile DevOps approach for software development with automated quality and security
- Codified lean product management with agile development and innovation with continuous integration and automated delivery

**Customer outcomes:**
- Reduced operating costs and increased availability by **52 percent**
- Assessed and transformed application into GovCloud in **3 months**
- Reduced testing from **3 weeks** to **3 hours** and releases from monthly to as frequently as daily
- Provided customer a **repeatable solution** for future application migrations to AWS GovCloud environment
- Completed ongoing security assessment to pre-discovery and resolve identified security issues
- Represented customer’s **first** Impact Level 4 (IL4) application to be fully operational in the Cloud

**Services/technology applied:**
- Managed services for AWS Cloud
- Perspecta applications transformation to cloud and application modernization
- .Net framework
- AngularJS
- Microsoft SQL server
Dive into cloud, but don’t jump in without applying the right strategy

Balance IT costs with business objectives? (rehost/re-factor)
- Consolidate IT landscape to improve productivity while reducing cost
- Reduce energy cost by moving to modern infrastructure, reduce licensing cost by consolidating on a few versions of middleware, DB or operating system
- Shift spend from CAPEX to OPEX, from operations to innovation, enabling business and IT transformation

Incrementally transform applications to cloud to gain value (re-factor)
- Establish organization, application and infrastructure landscape to manage the change becoming more responsive to evolving business needs
- Enable cloud technologies to create a new platform to gain agility
- Improve the collaboration between the business

Make an investment to reinvigorate legacy applications? (Re-factor/re-architect)
- Exploit core business IP contained in legacy applications and data
- Remove dependency on scarce skills and legacy technologies
- Re-architect applications to exploit new technologies
- Reduce risk and improve security and regulatory compliance

Choose your transformation strategy to balance value and risk

Transformation to cloud needs to be carefully planned to address all four strategies
Thank you