Migrating Applications to Public Cloud Services: Roadmap for Success V2.0

http://www.cloud-council.org/deliverables/migrating-applications-to-public-cloud-services-roadmap-for-success.htm

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Speakers

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The Cloud Standards Customer Council

THE Customer's Voice for Cloud Standards!

- Provide customer-led guidance to multiple cloud standards-defining bodies
- Establishing criteria for open standards-based cloud computing

2018 Projects

- **Migrating Apps to Public Cloud Services: Roadmap for Success v2.0**
- Best Practices for Developing and Growing a Cloud-Enabled Workforce
- Cloud Customer Architecture for Artificial Intelligence
- And more!

2017 Deliverables

- Cloud Customer Architecture for Hybrid Integration
- Impact of Cloud Computing on Healthcare v2.0
- Cloud Customer Architecture for API Management
- Data Residency Challenges
- Cloud Customer Architecture for Blockchain
- Cloud Customer Architecture for Big Data and Analytics v2.0
- Hybrid Cloud Considerations for Big Data and Analytics
- Practical Guide to Cloud Management Platforms
- Practical Guide to Cloud Computing v3.0
- Interoperability and Portability for Cloud Computing: A Guide v2.0
- Security for Cloud Computing: 10 Steps to Ensure Success v3.0

700+ Organizations participating

http://cloud-council.org

Migrating Applications to Public Cloud Services: Roadmap to Success V2.0

Recommended steps end users should take to ensure successful migration of existing applications to cloud computing

Initially published Dec. 2013
V2.0 published Feb. 2018

Motivation and Considerations

6 Steps to Ensure Successful Migration

1. Assess your applications and workloads
2. Build the business case
3. Develop the technical approach
4. Adopt a flexible integration model
5. Address security, privacy and data residency reqt's
6. Manage the migration

Conclusion, Appendices, References

Download the whitepaper: http://www.cloud-council.org/deliverables/migrating-applications-to-public-cloud-services-roadmap-for-success.htm

What's New in Version 2.0 ?

- Strengthened the motivation section

- Explained the difference between applications and workloads, and strengthened Appendix A which explores this in further detail

- Improved the "costs and savings" section of Step 1

- Expanded the technical approach (Step 3) to include containers-as-a-service (CaaS) and function-as-a service (FaaS) models, and added patterns

- Expanded the integration and migration models (Step 4) to explain options such as redesigning for microservices

- Added data residency issues to Step 5 on security and privacy (restructured, mentioned the GDPR impact)

- Revised and strengthened the migration procedure (Step 6 + Appendix B)

- Added new references (and moved all to Appendix C)

Step 1: Assess Your Applications and Workloads
Readiness Assessment

Considerations	What to Assess
Business	▪ Organization readiness, impact on the business, risk tolerance level, innovation culture, need to reach new client-oriented KPIs
Application Lifecycle	▪ New, up for refresh, approaching retirement? ▪ Ease of redesigning for cloud computing
Architecture	▪ Web-based? SOA? N-tier? APIs? ▪ Suitable for microservices?
Data	▪ Assess the integrity, privacy, residency and compliance requirements of the data
Infrastructure	▪ Account for performance, resiliency, high availability and disaster recovery
Security	▪ Identify significant risks, ensure proper treatment, and clearly define responsibilities
Integration	▪ Understand control, data and presentation integration requirements
Operations	▪ Who will do what? Responsibility assignment matrix.

Step 2: Build the Business Case

Business Impact

- *Revenue impact*

- *Customer acquisition or engagement impact*

- *User satisfaction*

- *Time to market improvements*

Service Levels

- *Application availability*

- *Application performance*

- *Application security*

- *Privacy*

- *Regulatory compliance*

Savings Analysis

- *Move from CAPEX to OPEX*

- *Savings on handling of peak loads*

- *Contract duration flexibility*

- *Staff reduction or reassignment*

Cost Analysis

- *On-going cloud service costs*

- *Service management*

- *Security Management*

- *License management*

- *Application re-designs*

- *Data and application integration*

- *Application deployment and testing*

- *Application maintenance and administration*

- *Human resources, training and talent management*

Step 3: Develop the Technical Approach

- Most substantial step in the paper (5 pages)

- Adds new information about the CaaS and FaaS service models
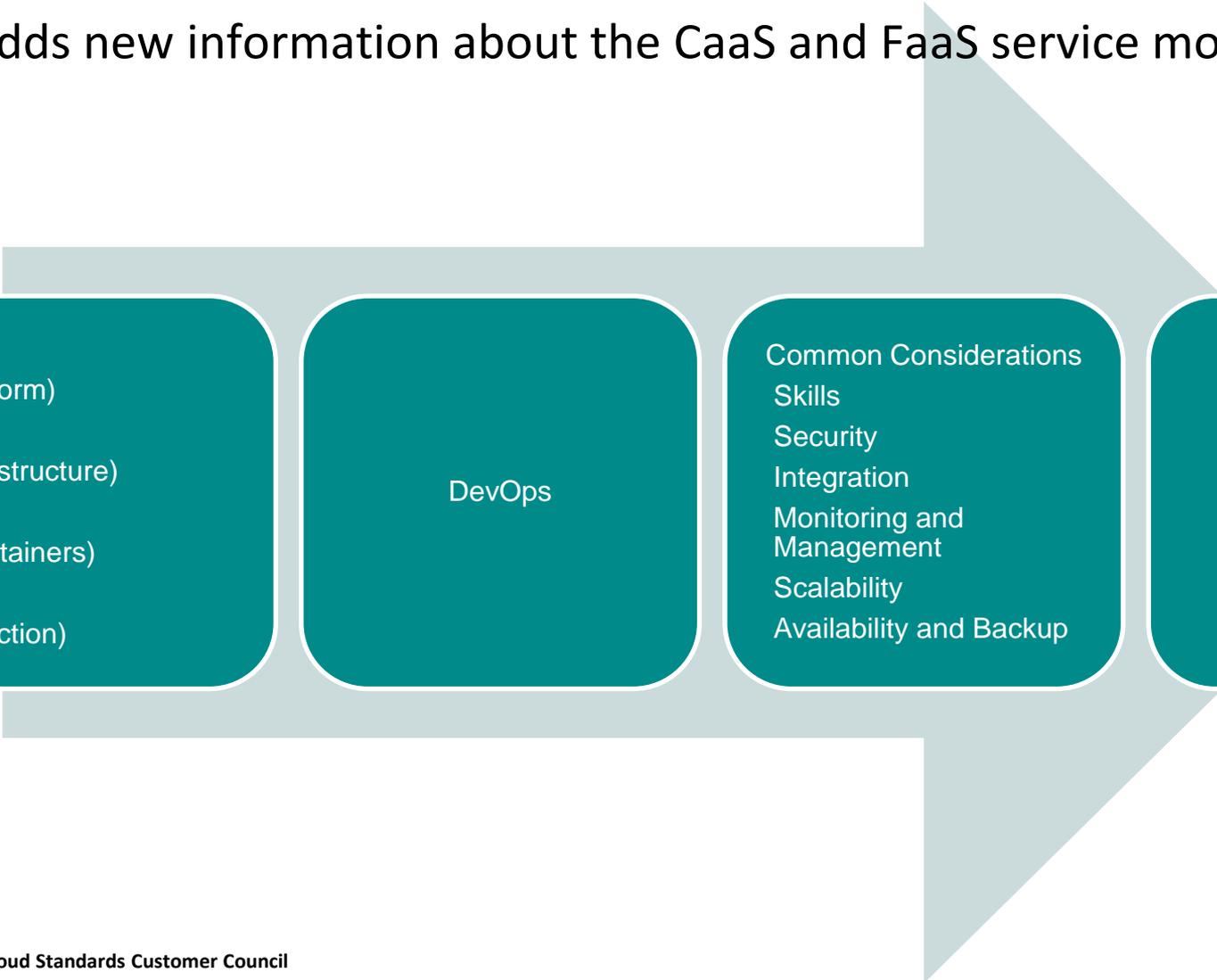
PaaS?
  (Platform)
IaaS?
  (Infrastructure)
CaaS?
  (Containers)
FaaS?
  (Function)
	DevOps	Common Considerations
		Skills
		Security
		Integration
		Monitoring and Management
		Scalability
		Availability and Backup
			Patterns

Step 3: Develop the Technical Approach

- Technical considerations for migration
    - Skills: Do your employees have cloud services skills?
    - Security: Ensure adequate security – with integration
    - Integration: Data and applications, between cloud service & on-premises
    - Monitoring and management: How will migrated app be handled?
    - Scalability: Can migrated app take advantage of cloud service scalability?
    - Availability and backup: How will these be achieved?
- Impact on DevOps / Continuous Delivery
- Consider the use of *Patterns*
    - Standard architectural organization for specific application requirements
    - Ranges of patterns are documented and available

Step 4: Adapt a Flexible Integration Model

Needs, Scope and Types

- Needs
  - End-to-end workflows
  - Master data management
  - Single sign-on
  - Remote monitoring
  - API management

- Scope
  - Cloud to cloud
  - Cloud to on-premises

- Types of integration
  - Control (mutual invocation)
  - Data (access to same databases)
  - Presentation (mashup on user interface)

Principles

- Flexibility
- Standards
- Opportunity for modernization
- "T-shirt sizing" (S/M/L/XL) of effort per integration point

Integration Patterns

- One-by-one redesign
- Move entangled of apps at one time
- Caching & synchronization
- Microservices
- Enterprise Service Bus (ESB) extending to the cloud
- Special cloud integration solutions

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Step 5: Address Security, Privacy, and Data Residency Requirements

- Clarify significant risks

- Be realistic: Security may be *better* in the cloud!

- 10 steps proposed for the specific case of application migration

Also see the CSCC's "Security for Cloud Computing: 10 Steps to Ensure Success" http://www.cloud-council.org/deliverables/security-for-cloud-computing-10-steps-to-ensure-success.htm

1. Understand what data will migrate
2. Map it to security classification
3. Identify the privacy concerns
4. Examine applicable regulations
5. Apply a risk management method (probability, impact, mitigation)
6. Review cloud provider's measures
7. Go/No-Go decision based on the above
8. Protect data during bulk migration, in transit, at rest, and during use
9. Design authentication and authorization method (SSO, etc.)
10. Put in place a rapid de-provisioning process

Step 6: Manage the Migration

Migration Procedure	Migration Details
1. Deploy the Cloud Environment	▪ Storage, servers, network, security resources
2. Implement monitoring & management services	▪ Organization, responsibility matrix, processes and procedures (e.g., ITIL-based), toolchains
3. Install & configure the applications & middleware	▪ Applications and supporting middleware ▪ Often done by providers through automated templates ▪ Perform integrations
4. Harden the Production Environment	▪ Additional utilities for business continuity and security ▪ If part of the cloud service offering, test them
5. Mock Migration	▪ Trial run of the migration project plan ▪ Purpose: uncover issues ▪ Allow time between the mock migration and the final cutover to fix problems
6. Operational readiness testing	▪ Test incident readiness, backup/DR, failure modes ▪ Review coverage of all migration responsibilities
7. Cutover to Production Cloud	▪ Serious issues found? Go back to previous steps ▪ No serious issues: plan real migration, execute, follow up

Call to Action

Join the CSCC Now!

- To have an impact on customer use case based standards requirements
- To learn about all Cloud Standards within one organization
- To help define the CSCC's future roadmap
- Membership is free & easy: www.cloud-council.org/become-a-member

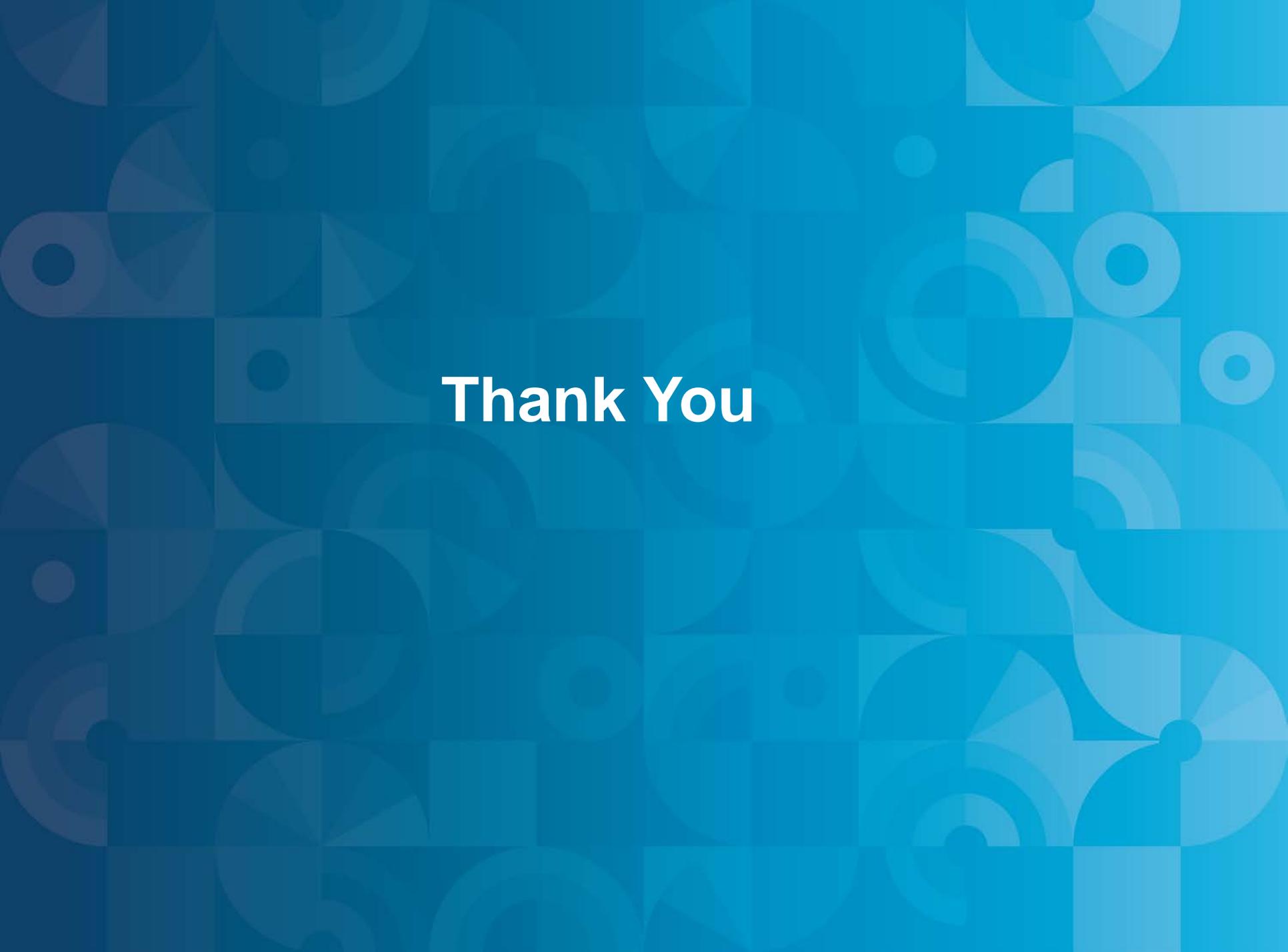## *Get Involved!*

- Join one or more of the CSCC Working Groups

  http://www.cloud-council.org/workinggroups

Leverage CSCC Collateral

- Visit http://www.cloud-council.org/resource-hub

Some Additional Resources

- ***Interoperability and Portability for Cloud Computing: A Guide V2.0***

  http://www.cloud-council.org/deliverables/interoperability-and-portability-fo cloud-computing-a-guide.htm

- ***Migrating Applications to the Cloud: Assessing Performance and Response Time Requirements***

  http://www.cloud-council.org/deliverables/migrating-applications-to-the-cloud-assessing-performance-and-response-time-requirements.htm

- ***Practical Guide to Cloud Computing Version 3.0***

  http://www.cloud-council.org/deliverables/practical-guide-to-cloud-computing.htm

- ***Security for Cloud Computing: 10 Steps to Ensure Success Version 3.0***

  http://www.cloud-council.org/deliverables/security-for-cloud-computing-10-steps-to-ensure-success.htm

- ***Practical Guide to Cloud Service Agreements Version 2.0***

  http://www.cloud-council.org/deliverables/practical-guide-to-cloud-service-agreements.htm

- ***Practical Guide to Cloud Management Platforms***

  http://www.cloud-council.org/deliverables/practical-guide-to-cloud-management-platforms.htm

Thank You