Software Solutions Symposium 2017

March 20–23, 2017

Toward Successfully Navigating Large-Scale IT Modernization Efforts

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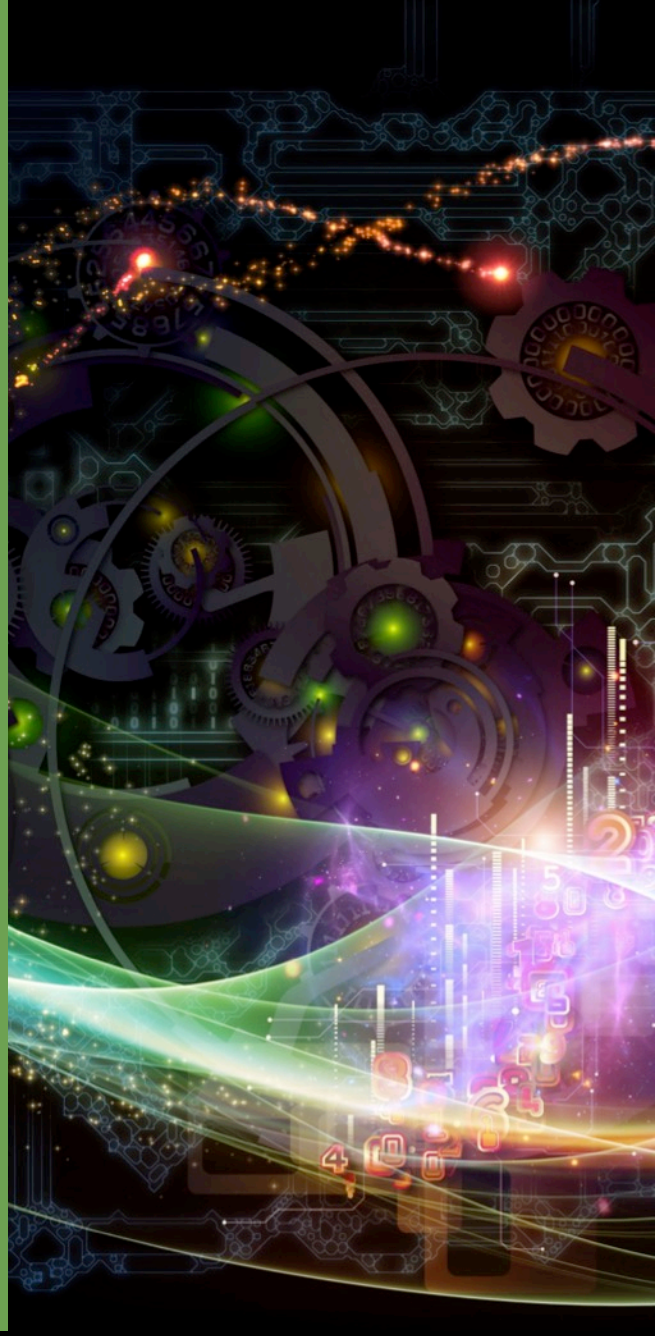


Document Markings

This material is based upon work funded and supported by the Department of Defense under Contract No. FA8721-05-C-0003 with Carnegie Mellon University for the operation of the Software Engineering Institute, a federally funded research and development center.

DM-0004436

Outline

- Why modernization matters to government
- Key characteristics
- Challenges
- Improvement strategy
- Monitoring progress
- Closing thoughts
- Q&A

Why Modernization Matters to Government

- All large-scale IT organizations have a common challenge… continuous modernization of IT infrastructure to enable business success
- Unlike hardware, we must evolve software because the environment in which it lives is continuously evolving
- Deficiencies in IT modernization strategy (technical and non-technical aspects) can result in
  - unsecure and/or unreliable systems
  - inefficient execution of business processes
  - increasing cost and complexity

Key Characteristics

- Case study example from a large-scale organization
- The organization is decentralized; we are working with one of the mission-critical sectors in the organization
- There are many systems supporting business operations within the sector
- Most of the systems are Oracle-based applications
- The organization wants to move toward digitization, cloud, and improved user experience

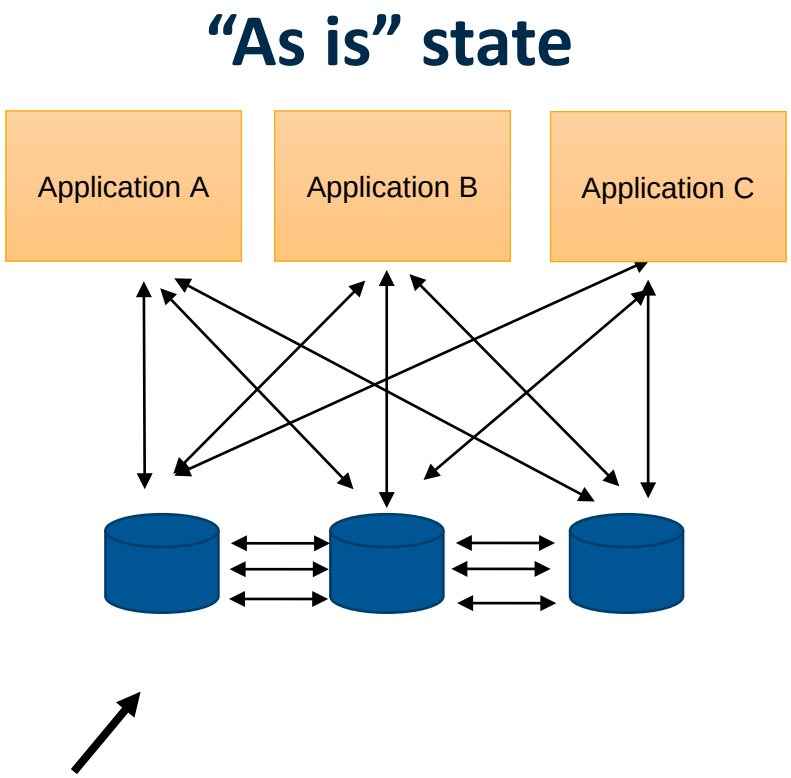
Customer Challenges

- Difficult to retire legacy applications
- High development costs due to repeatedly implementing data connections
- No shared data access, resulting in data integrity issues (e.g., copying)
- Difficulty innovating with new UI, mobile, cloud, etc.
- Hard to support new regulations or capabilities
- Not able to keep pace with increasing need to share data

Many IT organizations struggle with the same types of challenges

Current State

Coupling anti-pattern drives higher maintenance cost due to



Connections are a mix of direct database link, file transfer protocol, web service, and others

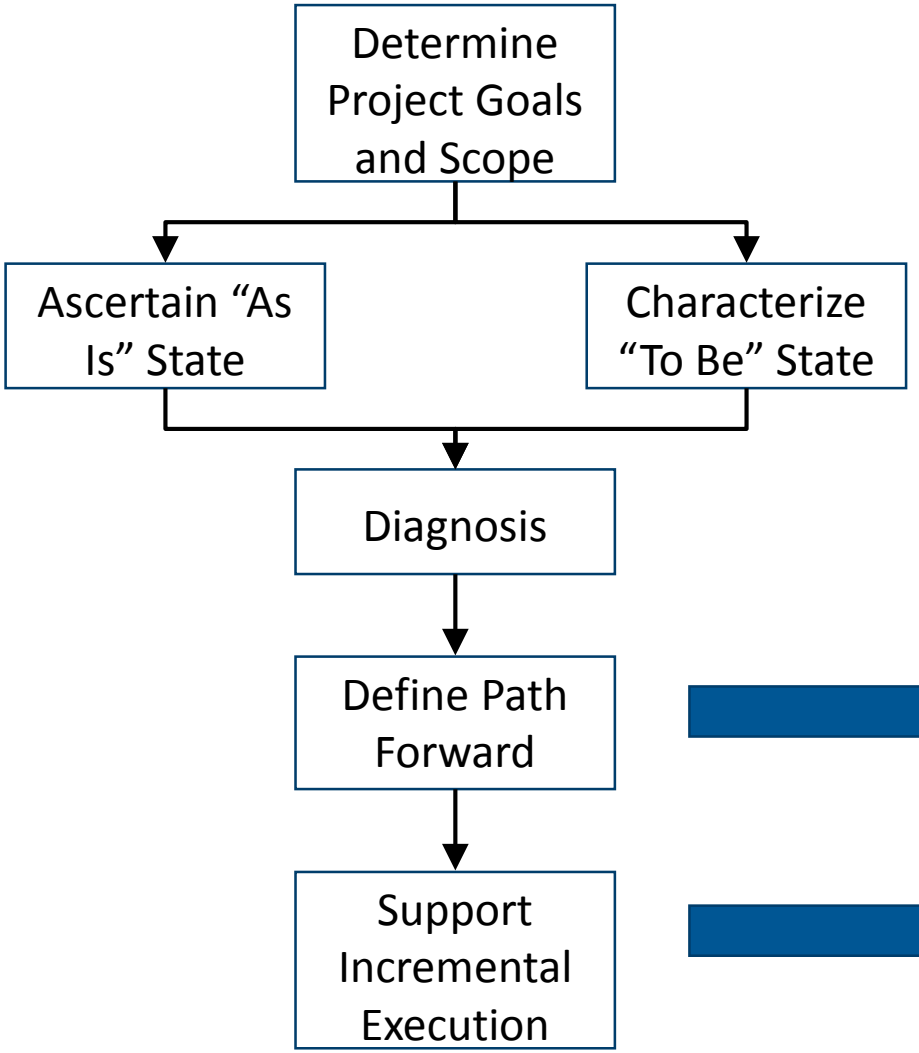
- increased analysis time/effort to reason about change
- time/effort spent on unanticipated consequences of change
- limited opportunity for reuse (developers reinvent the wheel)

Example Business Goals

Below are example enterprise business goals which can be impeded or enabled by technical decisions

#	Related Goals/Objectives
1	Advance ongoing business **process optimization** efforts.
2	Enhance and **improve business operations** and organization.
3	**Integrate processes** with ongoing business initiatives.
4	Build a **toolbox** to drive compliance and quality.
5	Enhance the way the organization does business by ensuring **efficient processes** and **quality systems**.
6	Strengthen relationships with partners.
7	Develop infrastructure to enable **tracking** of the budget by program.
8	Optimize IT systems and improve **data integration**.

Overview of Infrastructure Modernization Approach



Approach Steps

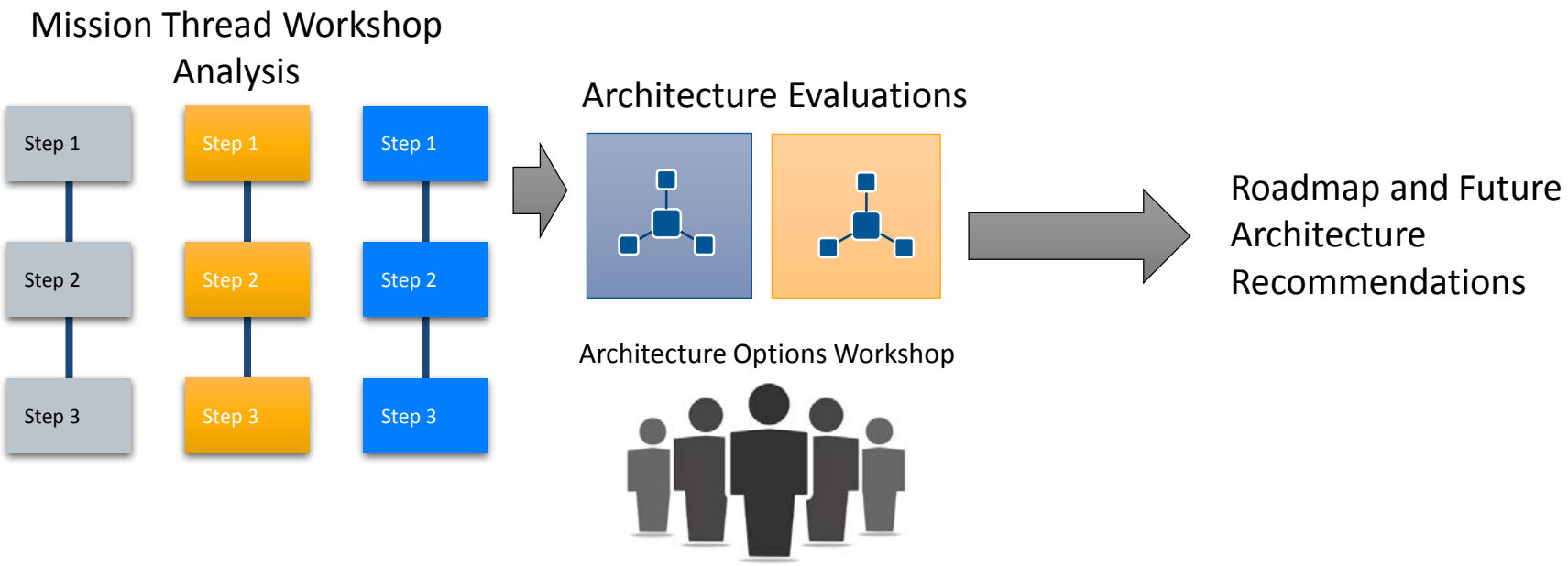
1) Diagnostic Analysis (Architectural Analysis, Technical Debt Analysis, etc.)

2) Technical and strategic roadmaps and future IT architecture

3) Incremental pilots, competency development, and technical governance

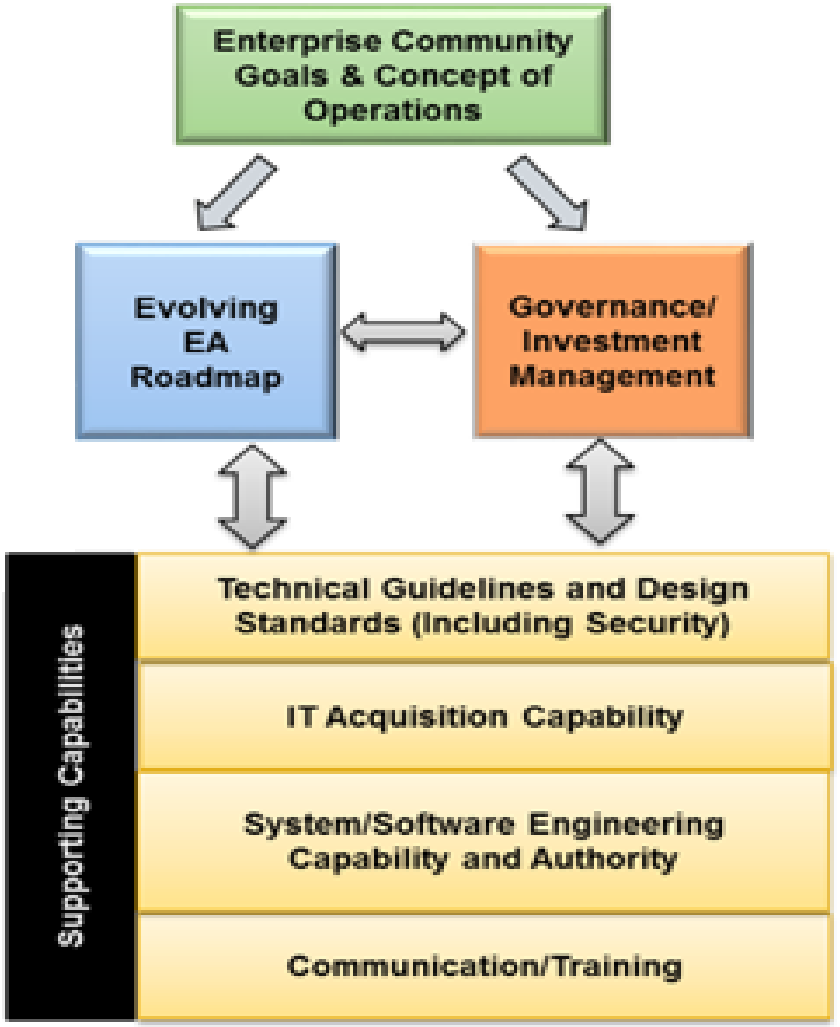
Architecture Approaches

The breadth and complexity of large-scale IT organizational environments require connecting several architecture analysis approaches and running multiple instances in parallel



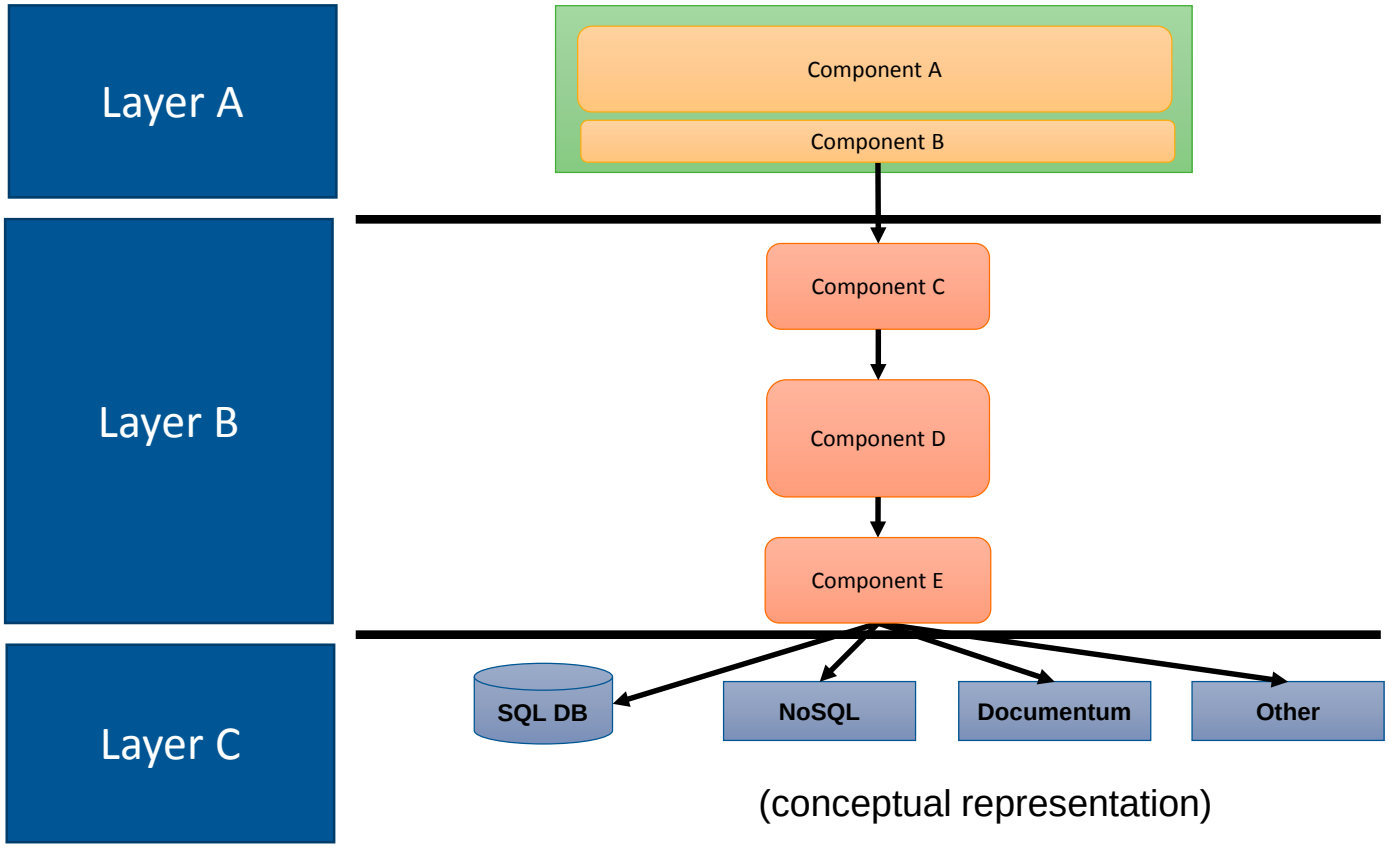
Challenges Landscape

Large-scale IT organizations must concurrently deal with technical and non-technical challenges



Future Architecture Vision

Using these methods, we developed an initial future architecture vision



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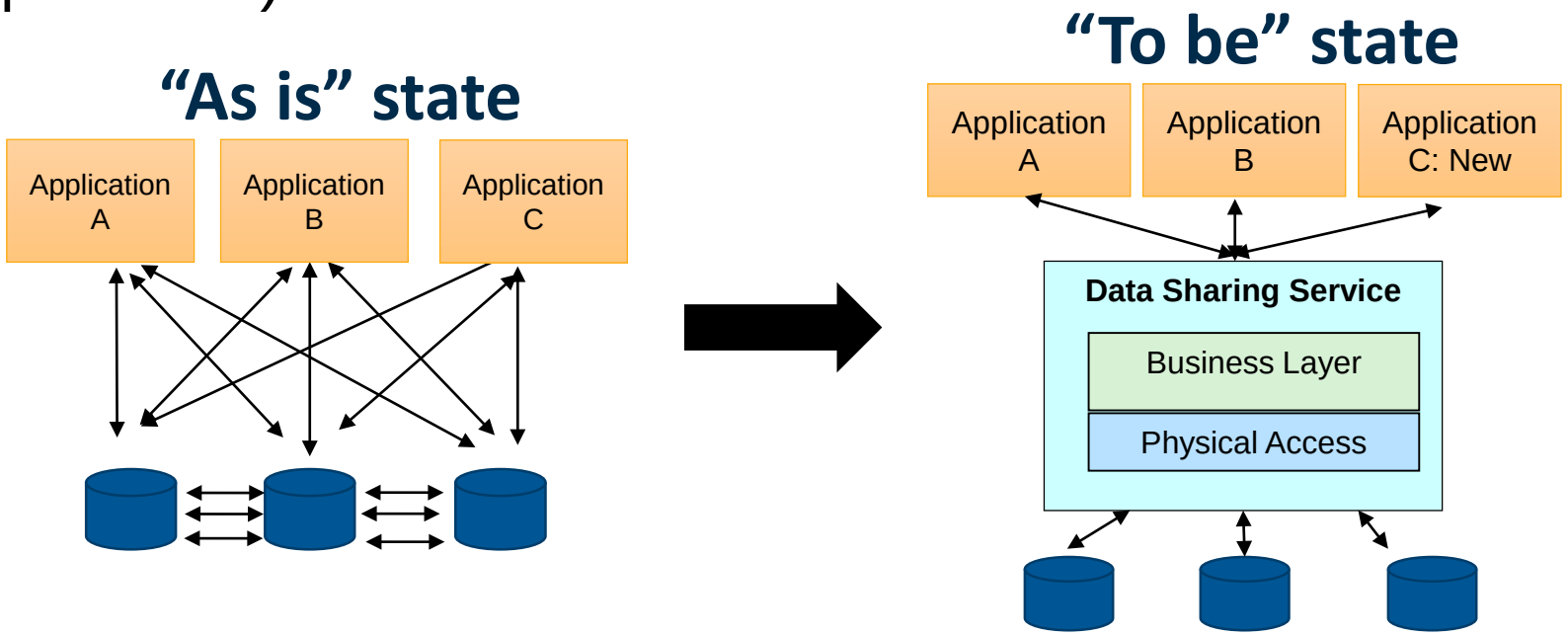
Benefits

- Reduces costly point-to-point connections
- Separates physical databases, enabling retirement of legacy applications
- Supports incremental migration (can use both old and new approaches)



Roadmaps

We develop two types of roadmaps:

1. The **technical roadmap** focuses on future IT architecture design
2. The **strategic roadmap** focuses on non-technical aspects

Technical roadmaps cover aspects such as

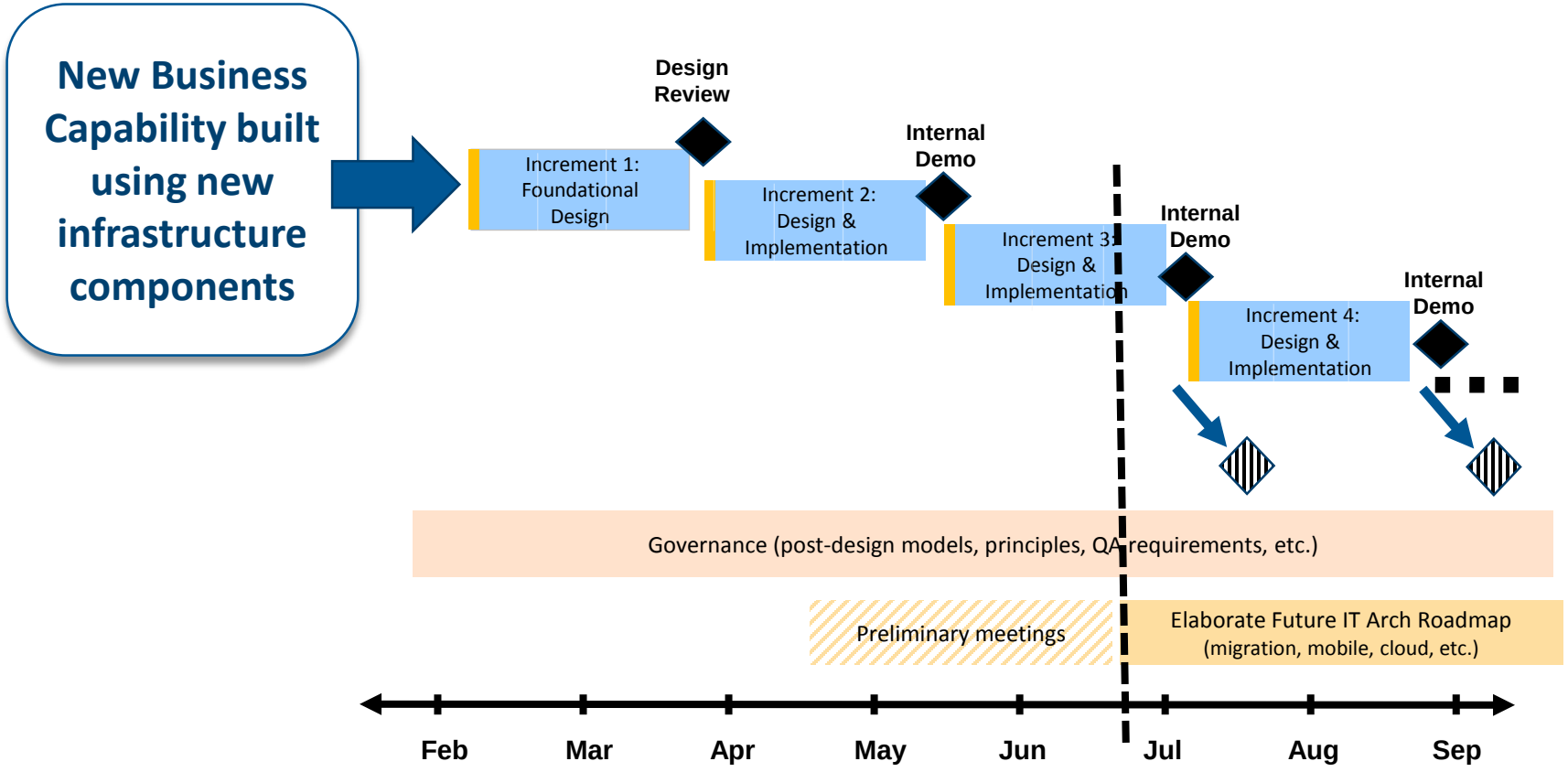
- hardware and infrastructure procurement
- developing software components
- test environment setup and execution

Strategic roadmaps cover aspects such as

- funding plan for infrastructure components
- acquisition strategy for common components
- technical governance

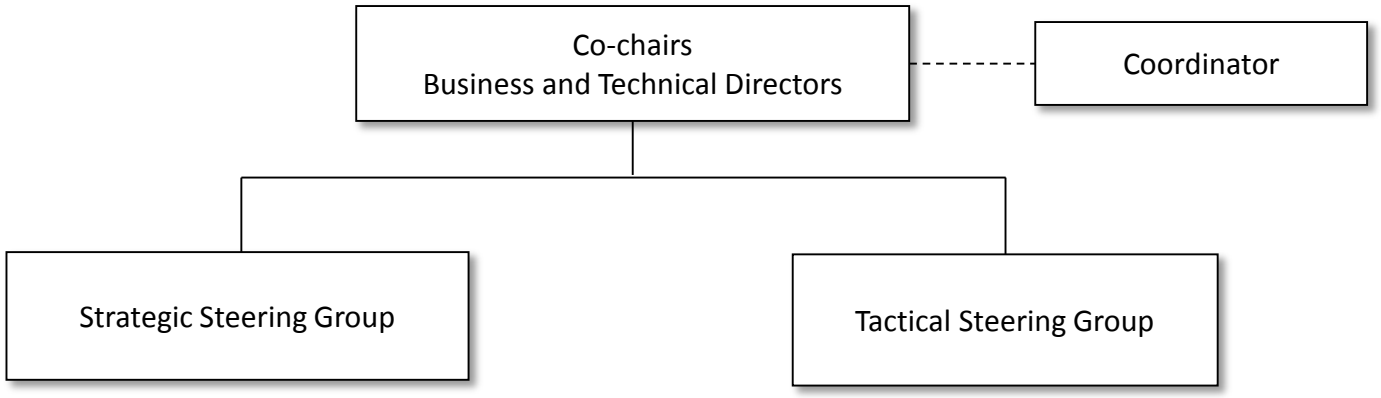
Incremental Execution

- Pilot with incremental architecture practices (blue boxes)
- Governance and future IT architecture work (red/orange)



Monitoring Progress and Risk

- Technical and strategic roadmaps are used to monitor and evaluate progress
  - Significant progress against planned tasks
- Technical steering groups are in place to identify, mitigate, and manage roadmap risks
  - Also responsible for developing technical standards, approving technology stack and integration approaches, etc.



(conceptual representation)

Closing Thoughts

- We observe the same modernization issues and patterns across large-scale organizations
- Big-bang strategies for modernization are high cost and high risk
- We presented a multi-pronged approach for incremental modernization improvement
- The approach applied in this example, and in other organizations of similar size and scope, allows for delivering business value ***while*** modernizing infrastructure

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