

**Micheal Daniels**

Practice Lead, IT Strategy & Design Services

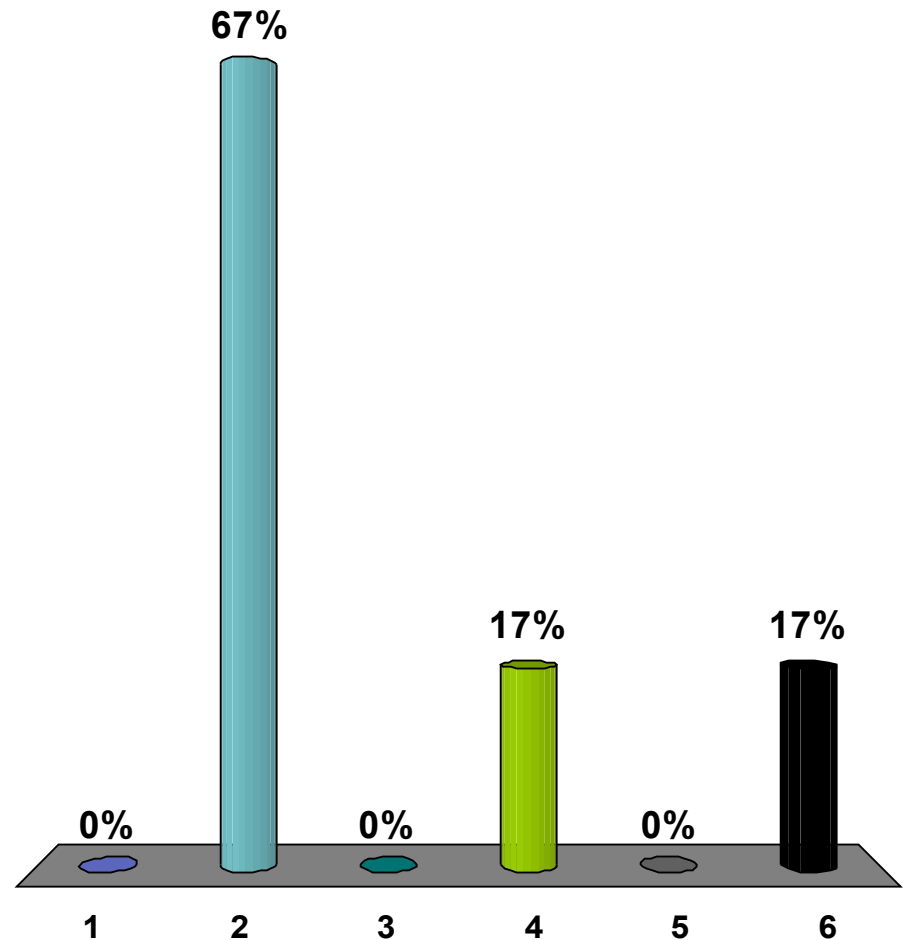


# Developing a Cloud Roadmap with a Workload Oriented Approach



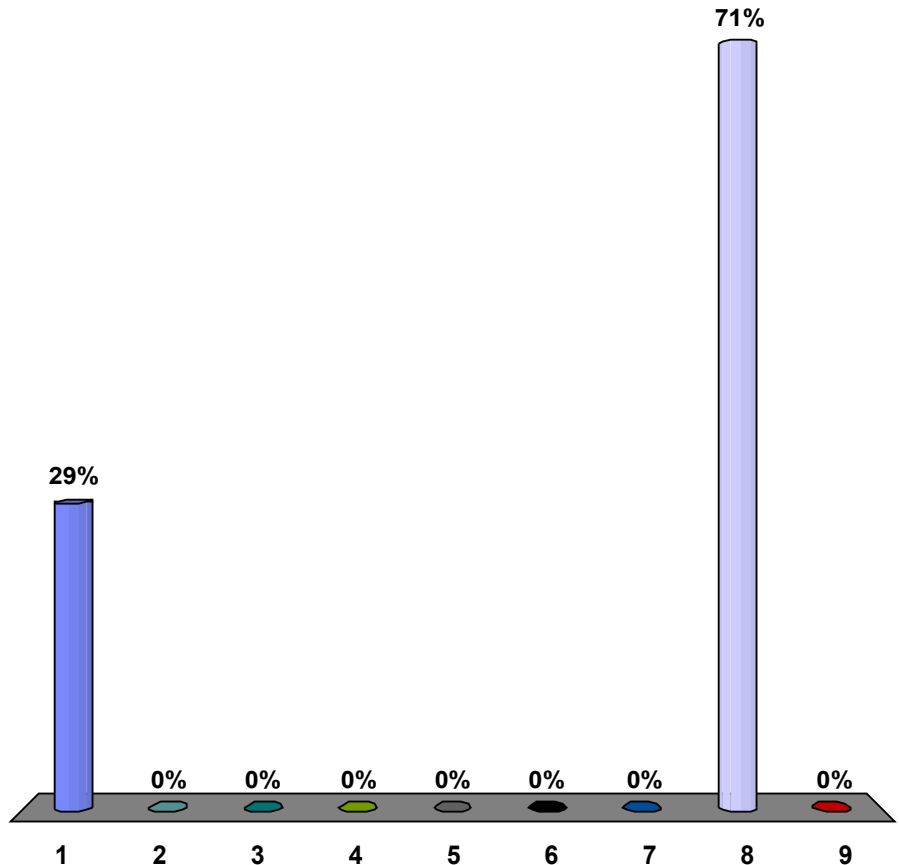
## Where are you in your cloud journey?

1. Haven't started yet
2. Starting to develop our strategy
3. Validating our strategy
4. Starting to execute our cloud strategy
5. Ready to proceed with our cloud journey
6. Already using cloud and measuring success



## What Cloud workloads are of greatest interest to your organization?

1. Development and test
2. Collaboration
3. Storage
4. Security
5. Business Continuity / Disaster Recovery
6. Analytics / Business Intelligence
7. ERP
8. Industry-specific / custom applications
9. Other



Many organizations are struggling with key questions around cloud – strategy, delivery models, and workloads

1. Could we utilize cloud services?
2. How would cloud support our organization's objectives?
3. What would be the benefits?
4. Would our current IT infrastructure support cloud delivery?
5. How can we develop a road map to achieve our cloud objectives?

***How do we plan  
for and get started  
with Cloud?***

Planning for cloud is best undertaken with a workload oriented approach.  
What is a workload? Some examples ...



**Analytics**



**Collaboration**



**Development  
and Test**



**Desktop and  
Devices**



**Infrastructure  
Compute**



**Infrastructure  
Storage**

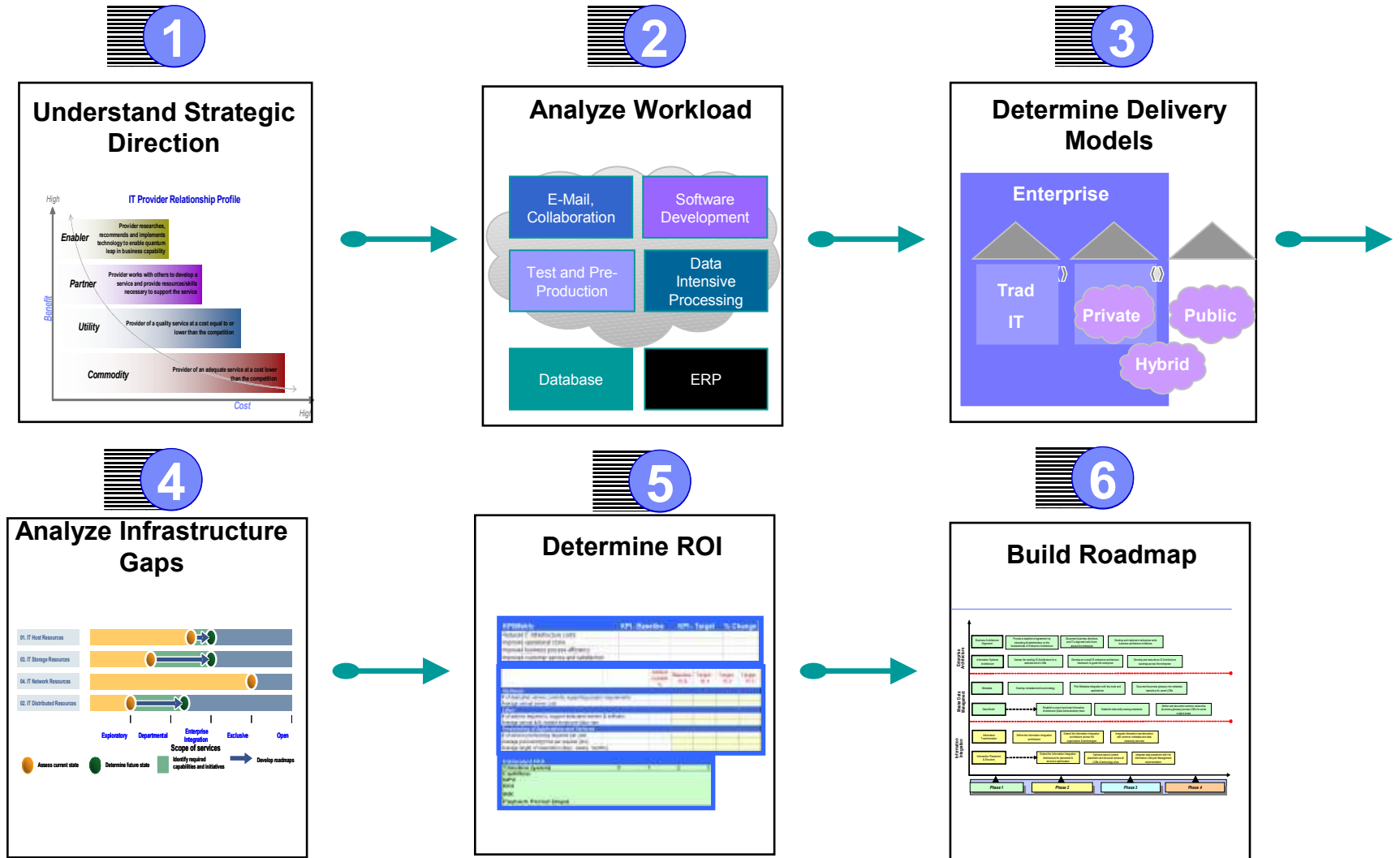
### Top public workloads

- Audio/video/Web conferencing
- Service help desk
- Infrastructure for training and demos
- WAN capacity and VoIP
- Desktop
- Test environment infrastructure
- Storage
- Data center network capacity
- Server

### Top private workloads

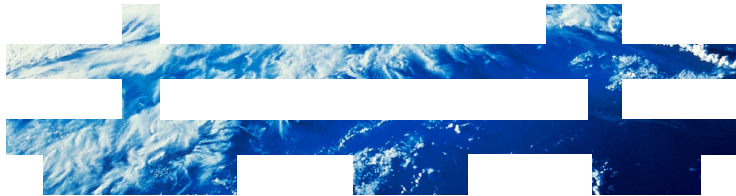
- Data mining, text mining, analytics
- Security
- Data warehouses or data marts
- Business continuity, disaster recovery
- Test environment infrastructure
- Long-term data archiving/preservation
- Transactional databases
- Industry-specific applications
- ERP applications

# An effective Cloud roadmap relies upon making the right choices based upon workloads



## A Cloud roadmap needs to be part of a high-level plan of IT improvements required to implement cloud computing

### Cloud Strategy, Business Case, and Roadmap



IAP03019-USEN-00

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## Example: Insurance Company

### *Business Challenge:*

- Reduce IT operating and capital costs
- Simplify the infrastructure
- Transform the business and IT to support flexibility and improve services

### *Approach and Solution:*

- Implemented Cloud Infrastructure Strategy and Design Services to:
  - Understand the potential value of Cloud
  - Understand how Cloud could be applied to their environment
  - Understand the gaps between current state and Cloud-Readiness
  - Provide guidance on analyzing and prioritizing of workloads to migrate to cloud
  - Build a strategy, plan, and roadmap to successfully implement the selected cloud delivery model.

### *Benefits:*

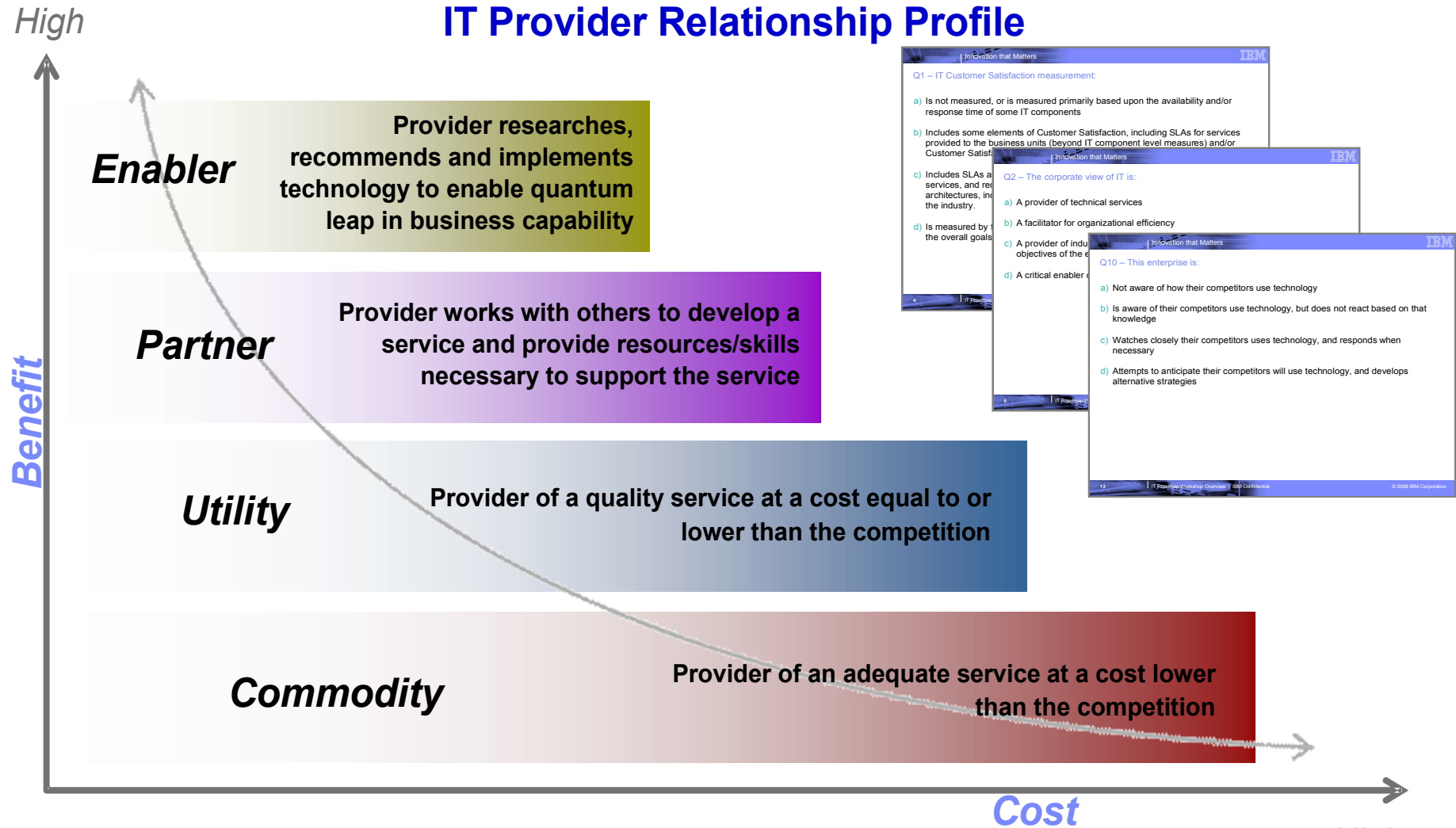
- Gained clarity on the strategic direction of cloud to enable the business
- Identified candidate workloads for cloud
- Established the business case and the ROI
- Determined the roadmap



## Step 1: Understand the strategic direction and relationship with the business

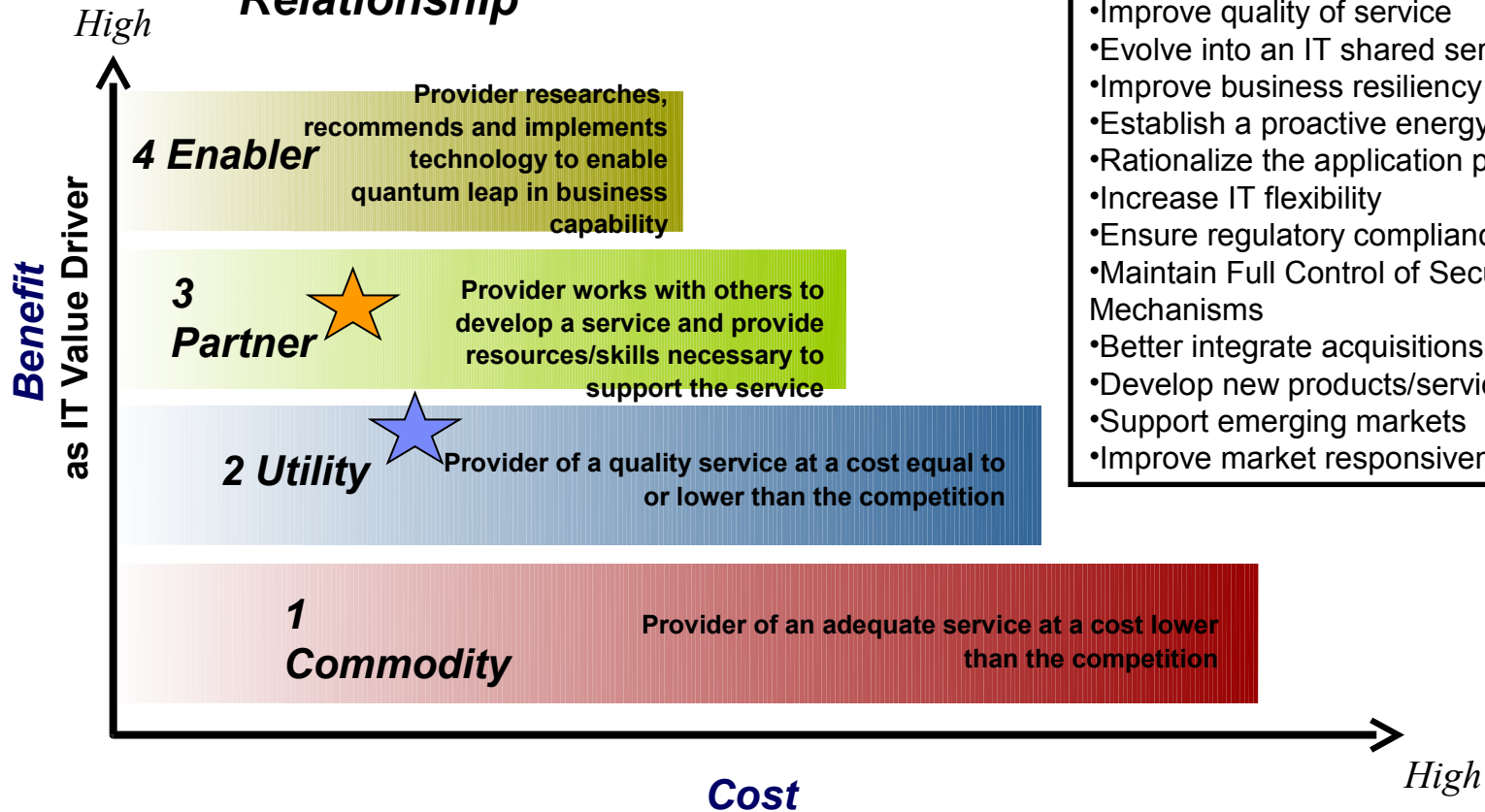
### Commodity, Utility, Provider, Enabler (CUPE) Survey

### IT Provider Relationship Profile



Step 1 example output: establishes the IT provider relationship and clarifies business and IT priorities

## Cost versus Benefit Relationship



### Priorities and Drivers

- Reduce IT operational costs
- Reduce IT capital expenditures
- Accommodate business growth at current costs
- Simplify/optimize technology infrastructure
- React to data center facility constraints
- Improve IT reliability
- Improve quality of service
- Evolve into an IT shared services model
- Improve business resiliency
- Establish a proactive energy efficiency strategy
- Rationalize the application portfolio
- Increase IT flexibility
- Ensure regulatory compliance
- Maintain Full Control of Security Protection Mechanisms
- Better integrate acquisitions
- Develop new products/services
- Support emerging markets
- Improve market responsiveness

## Step 2 : Analyze the workloads for cloud feasibility

## Workload Analysis Method (e-Cumulus)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Workloads	HW, SW, Facilities Maturity	Virtualization Maturity	Utilization Improvement Opportunities	IT Automation Maturity	Workload Standardization Opportunities	Data Constraints	Business and IT process improvement opportunities	% of Total* Revenue Affected	% of Total* Cost Affected
Web Serving	Low	Low	High	Med	Med	Med	Low	11 -- 20%	11 -- 20%
Web Applications	High	Med	Med	Med	Low	Low	N/A	N/A	21 -- 30%
BI Data Warehouse	N/A Low Med High	High	Low	High	Low	High	Low	11 -- 20%	11 -- 20%
ERP, SCM	High	Low	Med	High	Low	High	Med	0 -- 10%	31 -- 40%
Analytics	Med	Med	Low	Med	Low	Med	Low	11 -- 20%	11 -- 20%
Numerical, Batch	Med	Med	Med	Med	Med	Med	Med	0 -- 10%	0 -- 10%
Collaboration	Med	Low	High	Low	Med	Low	Med	0 -- 10%	0 -- 10%
File & Print	Low	Low	High	Low	High	Low	High	0 -- 10%	0 -- 10%
Desktop	Med	Low	High	Low	Med	Low	High	0 -- 10%	21 -- 30%
Development & Test	Med	Low	Med	Med	Med	Low	High	11 -- 20%	11 -- 20%

**Sample Assessment Questions:**

For each workload, answer True or False to each statement

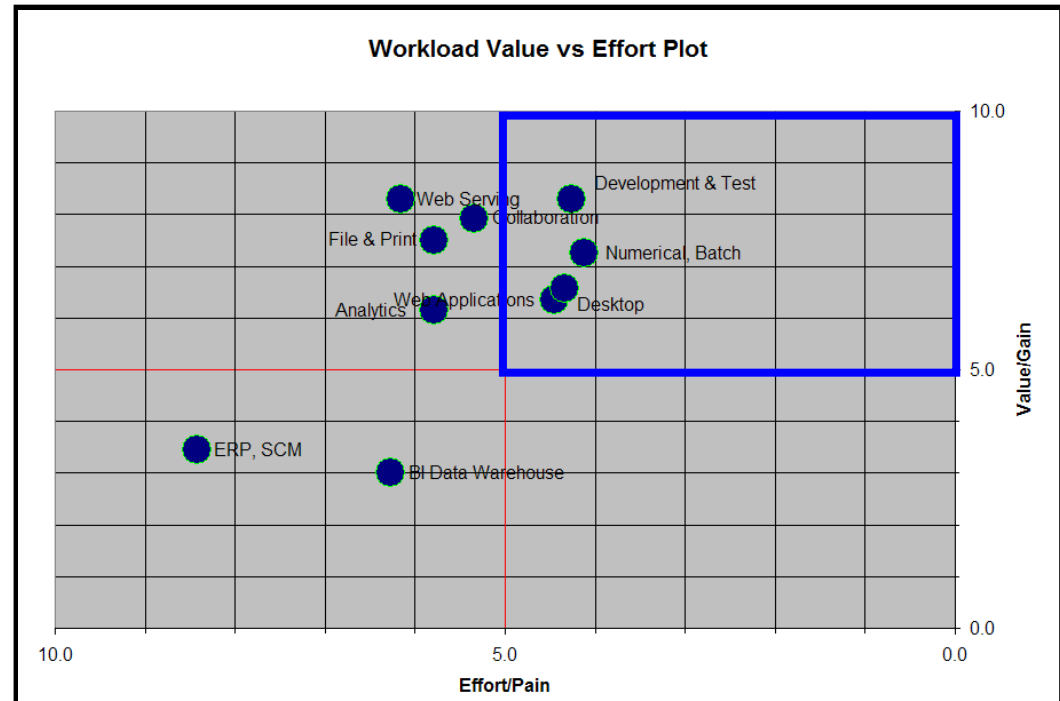
1. All IT tasks for managing a server are performed remotely using system management tools
2. At most one tool is used to perform a single type of IT task on all servers
3. Single integrated management tool or toolset is used for routine management tasks
4. Routine tasks do not require manual intervention or coordination between tasks across all servers
5. Adding/removing new servers and software components do not require manual intervention or reconfiguration of management tools

Step 2 example output: determines candidate workloads for possible migration to cloud computing

## Sample Workload Scorecard

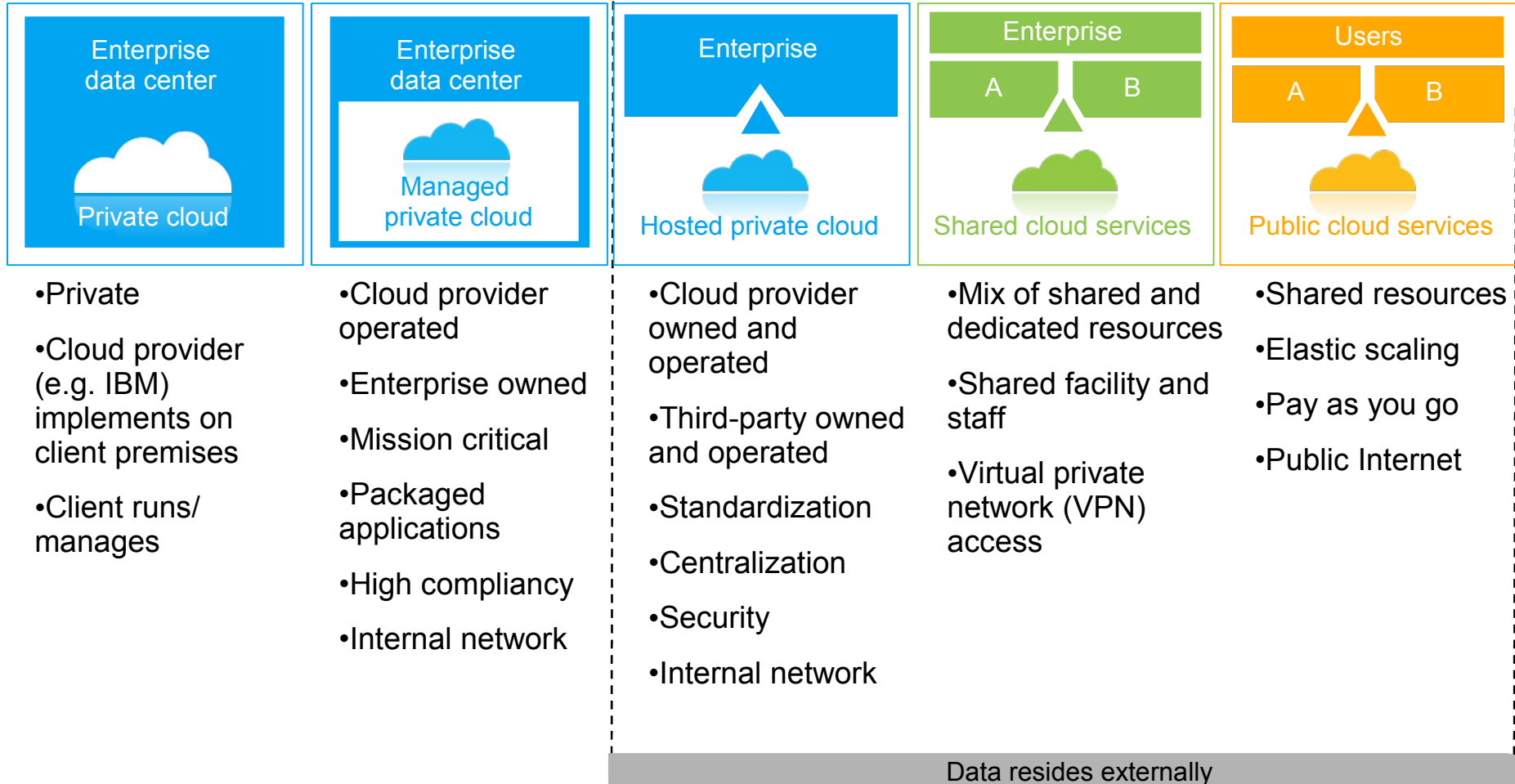
Workloads	Abs Value/ Gain Score (0.00 - 10.00)	Abs Effort/ Pain Score (0.00 - 10.00)
Web Serving	8.30	6.16
Web Applications	6.35	4.45
BI Data Warehouse	3.00	6.27
ERP, SCM	3.44	8.42
Analytics	6.15	5.79
Numerical, Batch	7.25	4.13
Collaboration	7.93	5.34
File & Print	7.50	5.79
Desktop	6.57	4.34
Development & Test	8.29	4.26

## Sample Workload Pain versus Gain Output

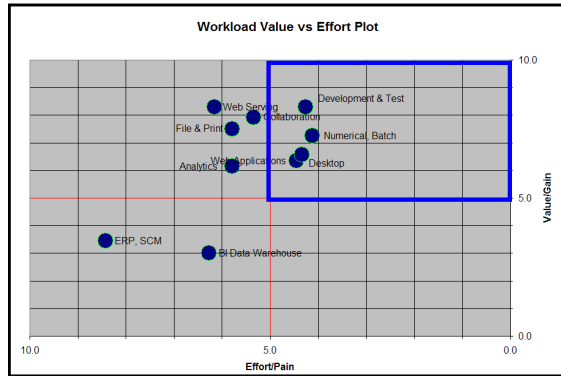


## Step 3: Determine the cloud delivery models

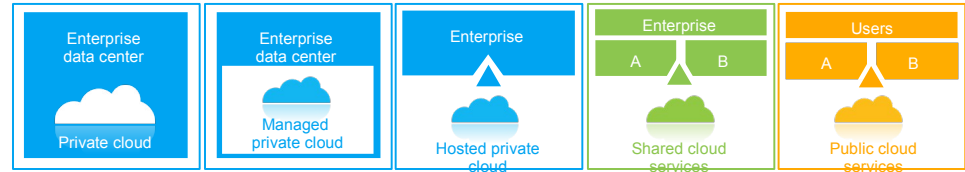
### Delivery models



## Step 3 example output: determines which candidate workloads are appropriate for the type of delivery model



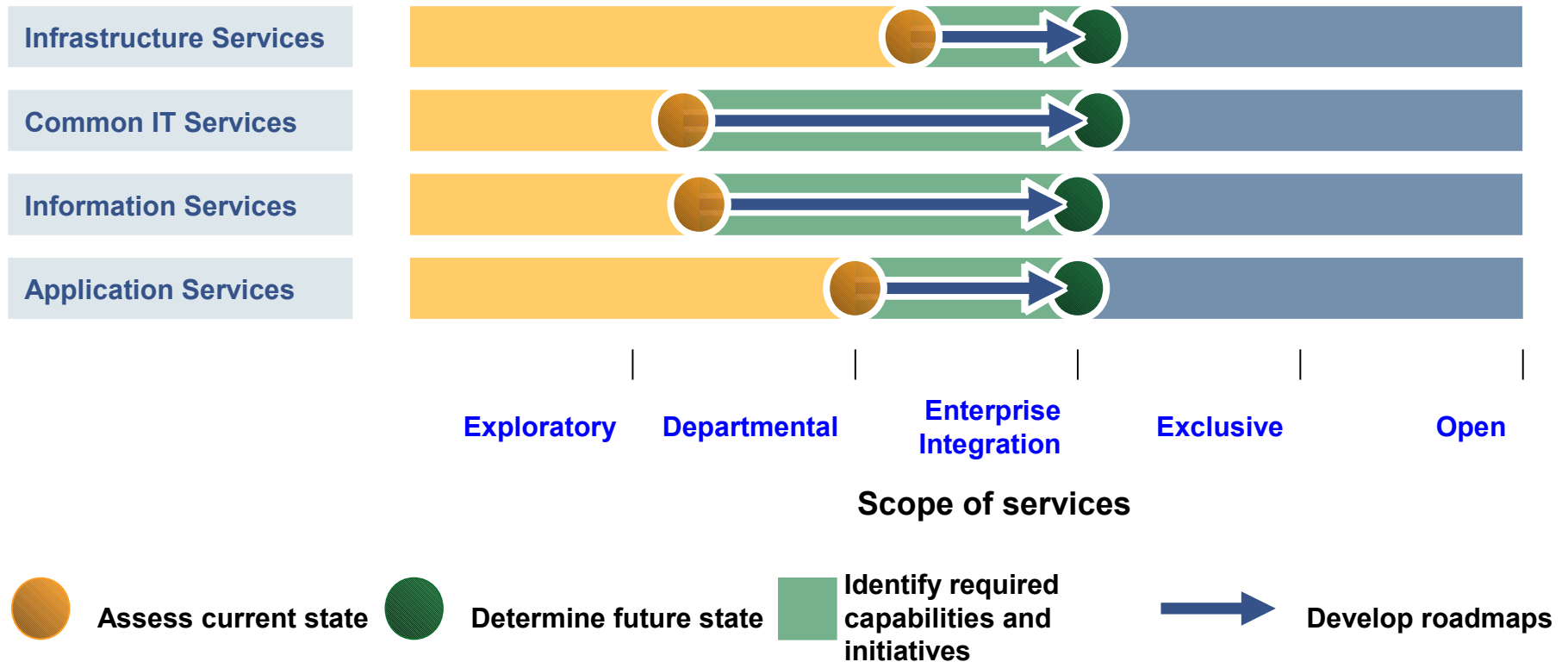
### Delivery models



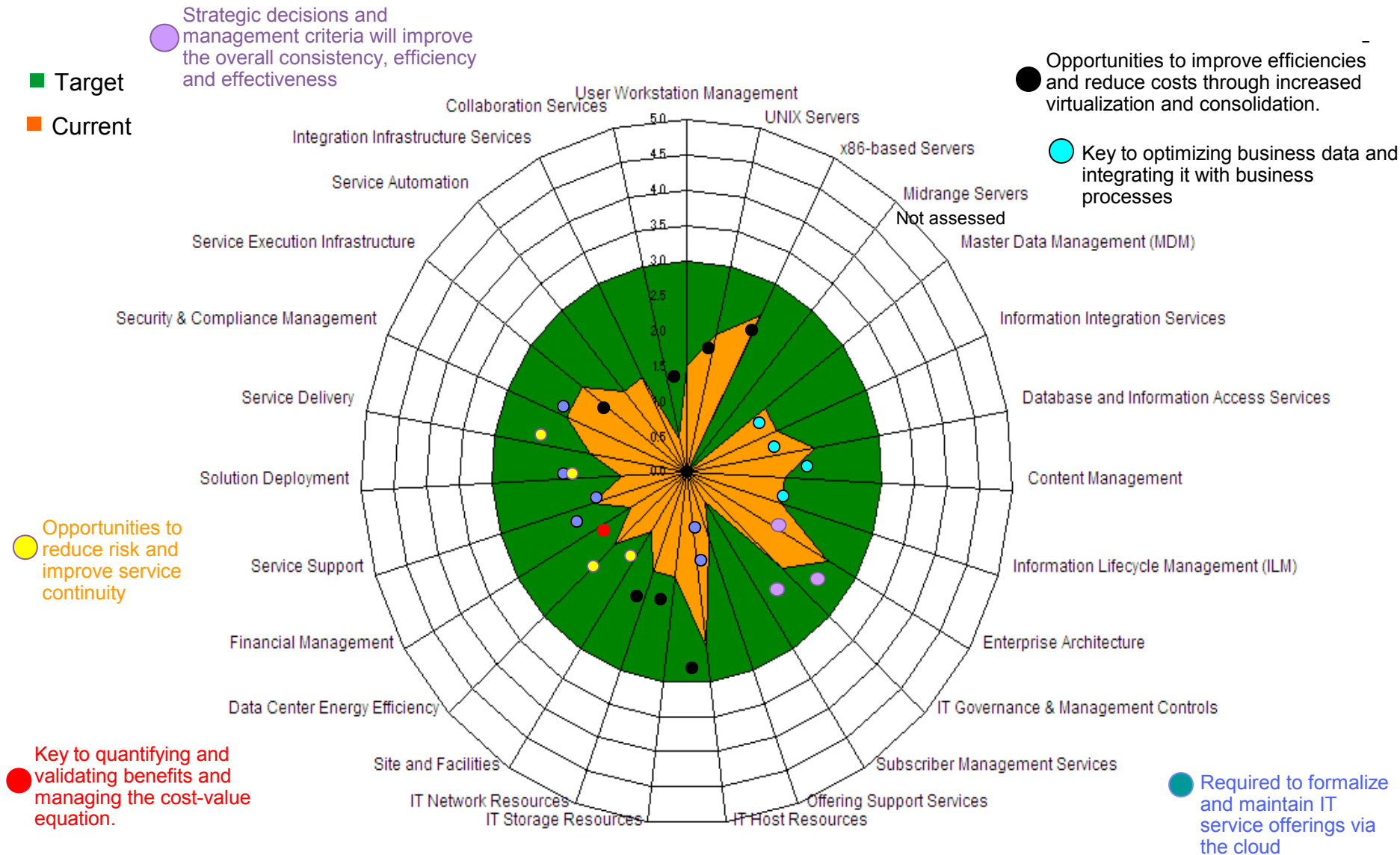
Priority	Cloud Adoption Framework Layer	Role	Pervasiveness	Resources	Example Workloads
1.	Infrastructure as a Service (IaaS)	Provider (Consumer)	Enterprise	Mainframe	
2.	IaaS	Provider (Consumer)	Enterprise	Linux and Unix Servers	
3.	IaaS	Provider (Consumer)	Enterprise	Windows Intel Servers	
4.	Platform as a Service (PaaS)	Provider (Consumer)	Enterprise	Test/QA	Dev/Test
5.	PaaS	Provider (Consumer)	Enterprise	Web Serving	xClient.com
Alternatively depending upon further risk consideration	PaaS	Consumer – Integrator	Exclusive Cloud	Web Serving	xClient.com

## Step 4: Analyze infrastructure gaps

### Assessment and Roadmap Tool (ART)

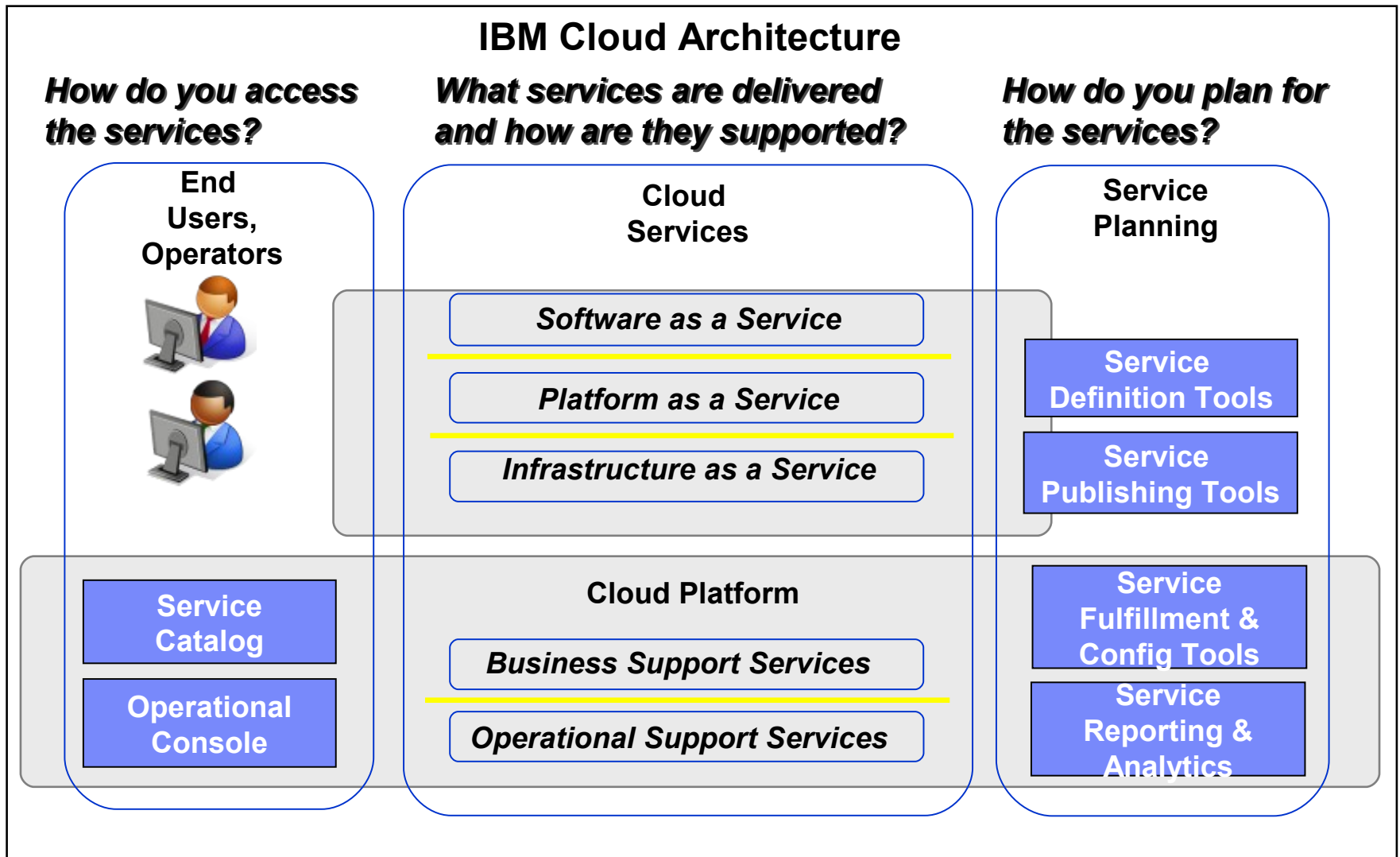


## Step 4 example output: assesses current vs. target infrastructure characteristics





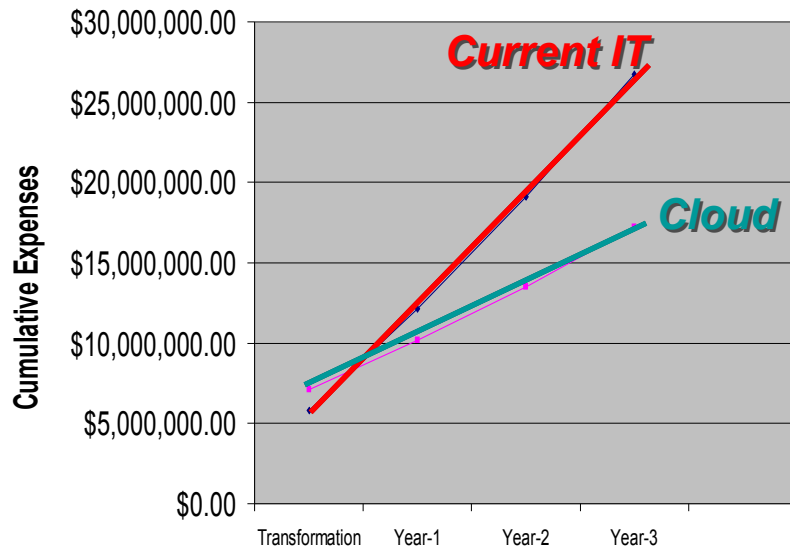
Step 4 (continued): While analyzing the gaps, an assessment of the architecture is established



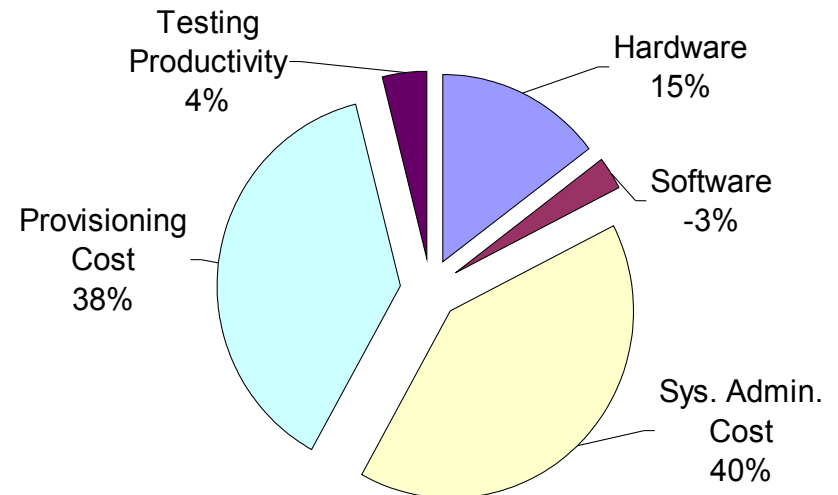
## Step 5: Determine the ROI

Payback Period (months)	4.85
Estimated ROI over 3 years	469.75%
Estimated Average Annual ROI	156.58%

**Cumulative Cost Comparison**

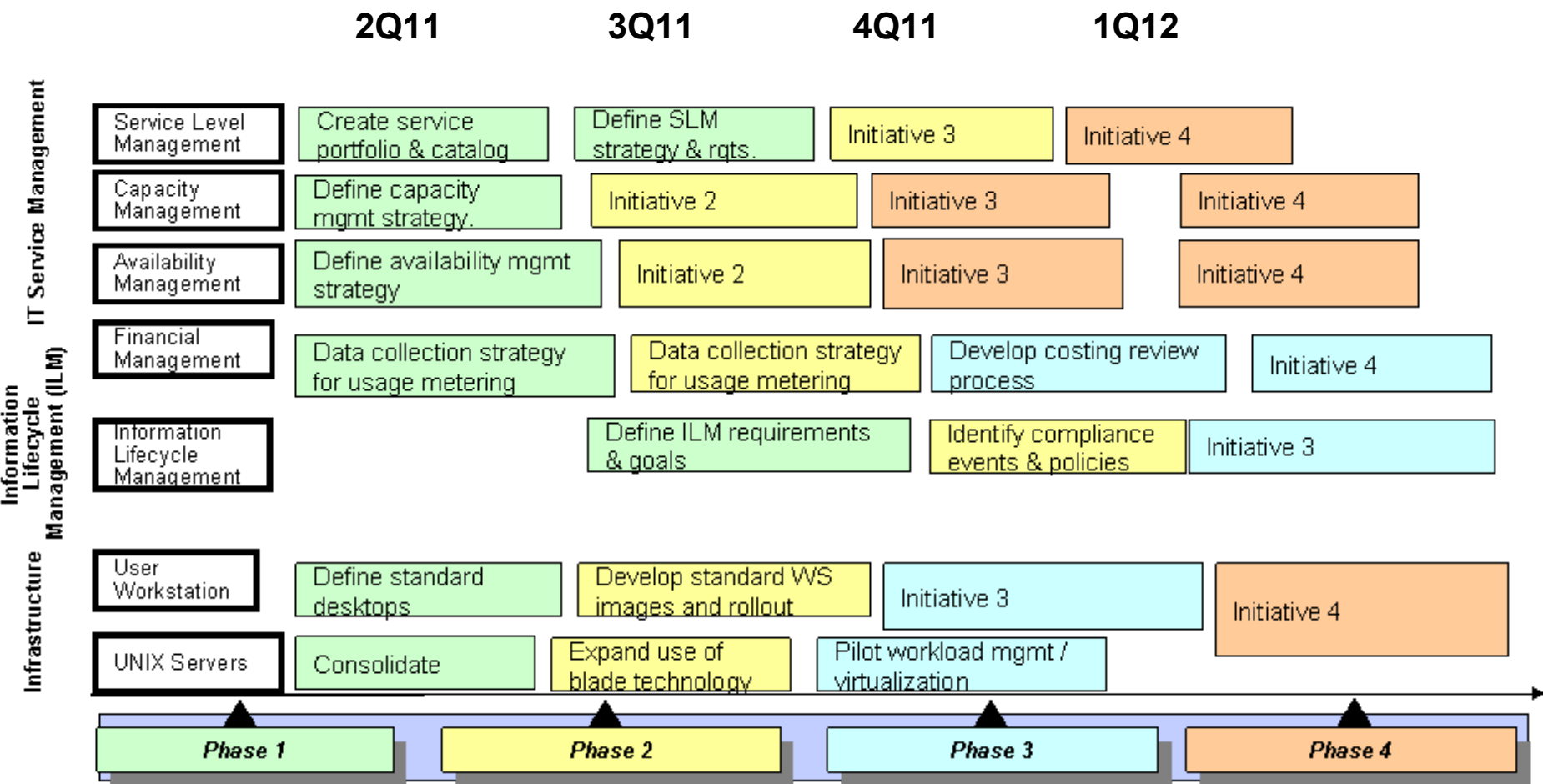


**Year One Savings By Category**

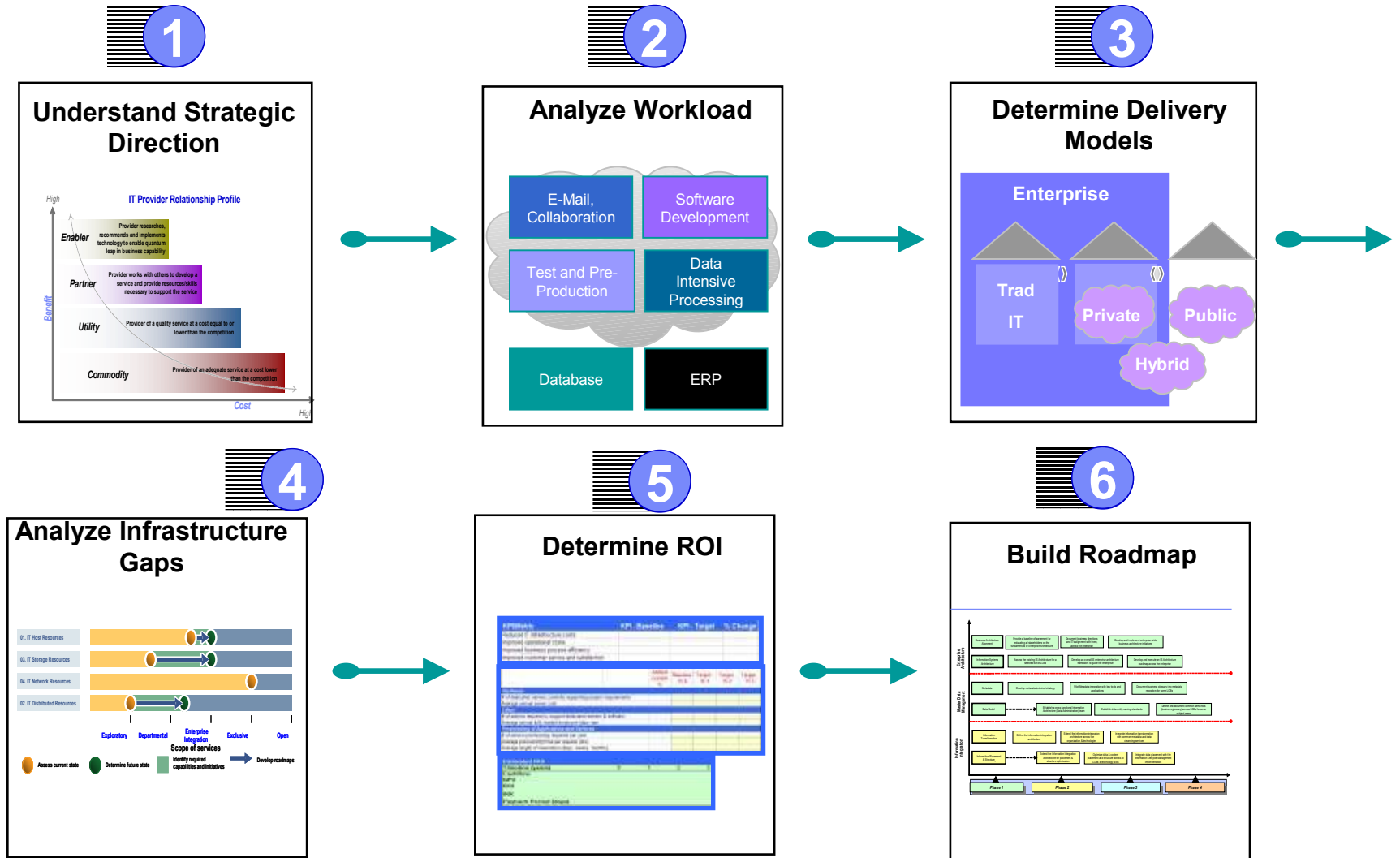


ROI projections from IBM Research Study 2009

Step 6: Build the roadmap



# Summary: Build an effective Cloud Roadmap by making the right choices based upon workloads



## Get started and plan for Cloud with a workload oriented approach



Develop a  
strategy



### Develop a cloud strategy and roadmap

- Assess cloud deployment models, service options and workloads
- Understand the ROI
- Build the right business case



Ready your  
infrastructure



### Condition your existing infrastructure for cloud

- Virtualize and automate existing systems
- Implement key technologies and services to support a cloud infrastructure
- Ensure service management is in place



Pilot and  
Deploy



### Target specific workloads for cloud deployment

- Architect and implement low-risk workloads such as test and development, desktop, backup and recovery or storage
- Standardize workloads and supporting systems

## Refining your Cloud roadmap: Workload Transformation Analysis

- You have defined your Cloud strategic direction. Now you need to accelerate adoption of that strategy, by identifying those workloads that will best fit your targeted cloud environment while giving you a good return on investment.
- **IBM Workload Transformation Analysis for Cloud** uses our IBM Research-developed patent-pending analytical tool and a structured, accelerated methodology to:
  - Produce a detailed, quantitative analysis of both business applications and infrastructure components
  - Deliver a prioritized list of suitable workloads for migration to your target cloud as well as an analysis showing the potential costs and migration impacts.
- **Why IBM?** IBM has used this same tool and methodology in our own cloud migration initiatives, narrowing a list of more than 9,500 applications from around the world to those that were best suited for our target cloud. Following our structured approach can enable you to focus on the most beneficial workloads to migrate, helping you realize the advantages of cloud computing more quickly.

If interested in the above engagement, contact Micheal Daniels [madaniel@ca.ibm.com](mailto:madaniel@ca.ibm.com)

