



Managing Modern IT

Measuring the Success of Cloud-Based Services

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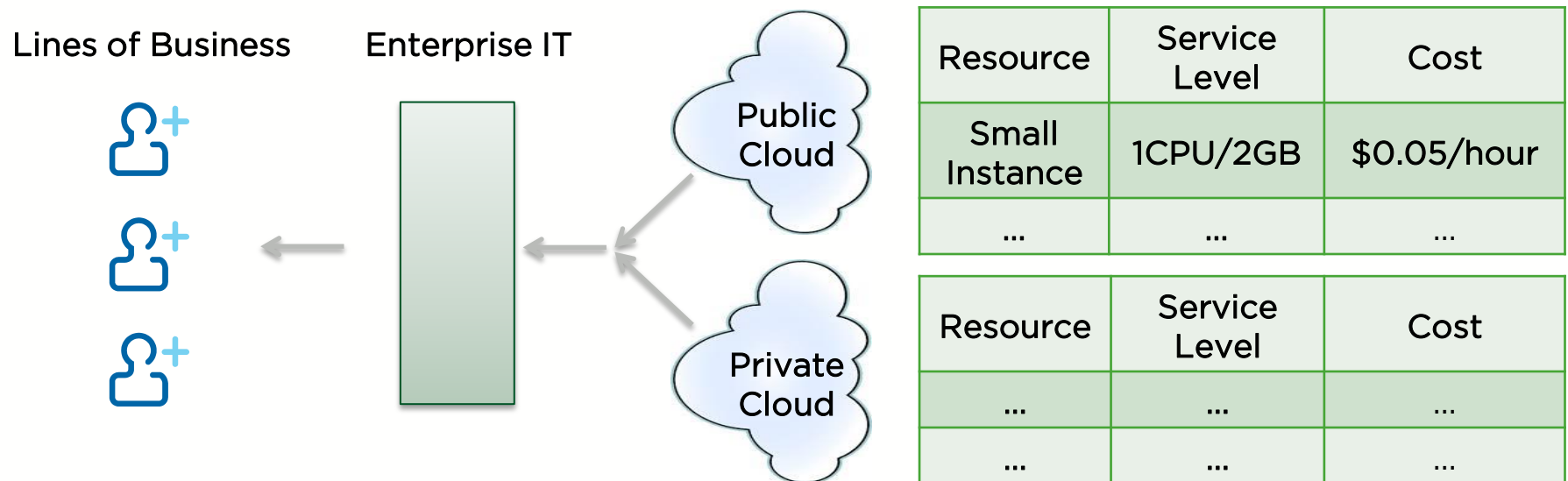
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- Cloud and metric driven management
- Relevant IT metrics and considerations
- Process and best practices
- How Vistara can help

Cloud...

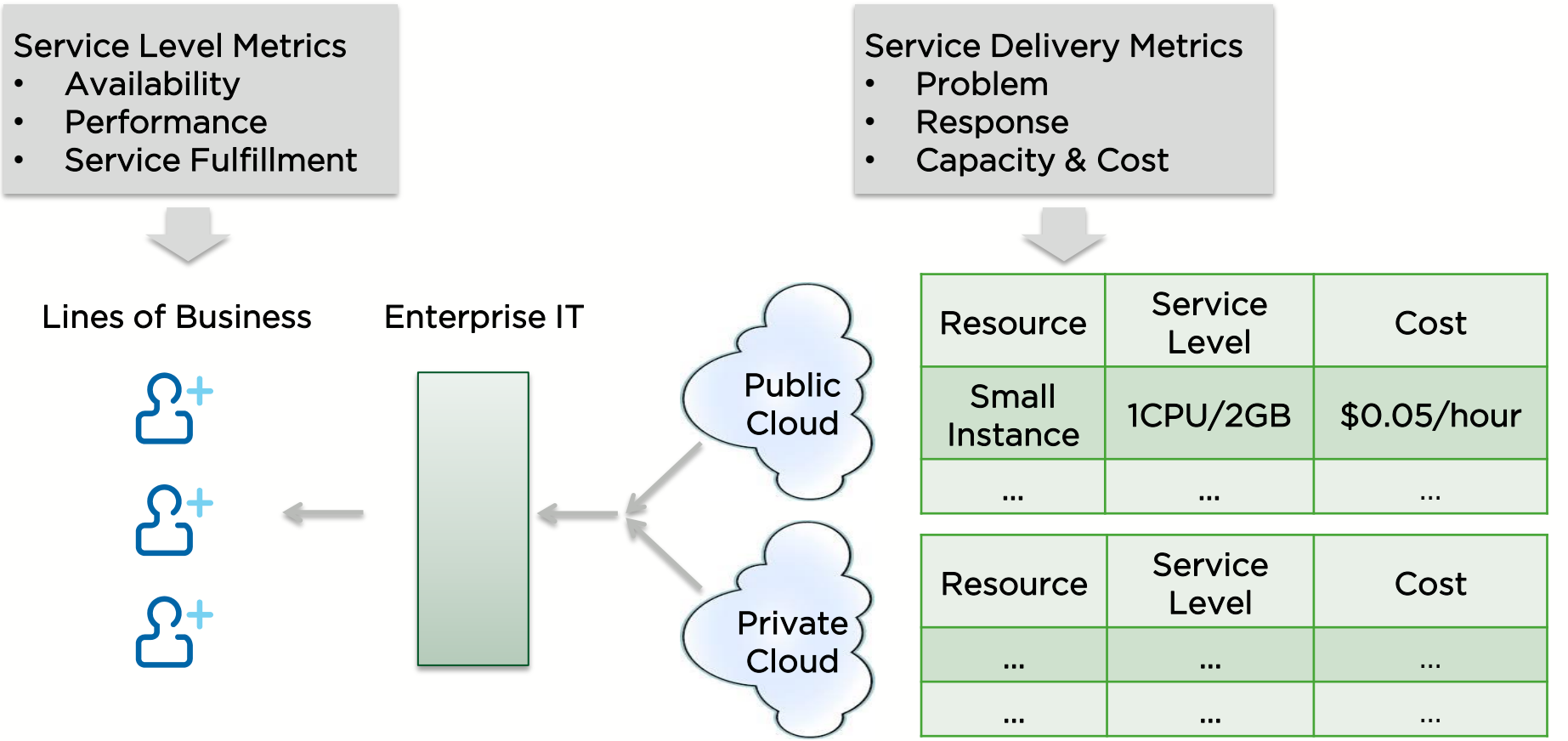
- Represents a new model for IT service delivery
 - Resources consumed on demand, sourced from a mix of **private** and **public** clouds
- Brings transparency to **service levels** and **costs** of IT resources
- Requires IT to manage operations to meet specific service level and cost goals



What metrics should Enterprise IT measure and track?

IT metrics should measure

- Service levels delivered to lines of business – **Service Level Metrics**
- Effectiveness and efficiency with which services are delivered – **Service Delivery Metrics**



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What Availability metrics measure

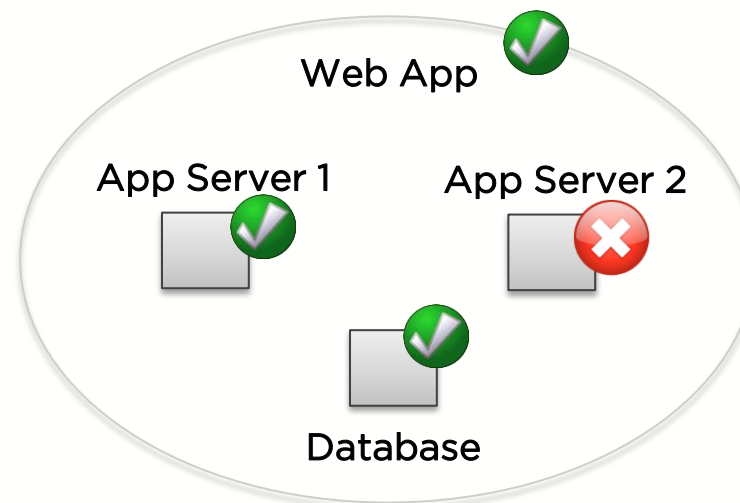
- Quantifies up or down status of services, as experienced by the end user
 - % of time service is available for use, over a time interval – e.g. last month

What to measure

	Typical Measures
Servers	Ping Response, OS service or agent status
Network Devices	Ping Response, Interface/Port Status
Applications, URLs, Web Services	Ping, HTTP GET

Considerations

- **Element level availability vs. availability of an entire service**
 - Do you track availability of individual elements or an entire service composed of multiple elements?
- **Is Availability a binary quantity (Up / Down) or more fine grained?**
 - How do you account services that are available, but running with degraded redundancy/performance?
- **Planned Downtime vs. Unplanned Downtime**
 - Do you count downtime due to planned activities (e.g. patching)?



What Performance metrics measure

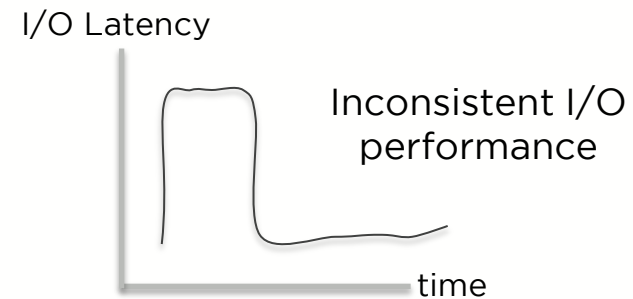
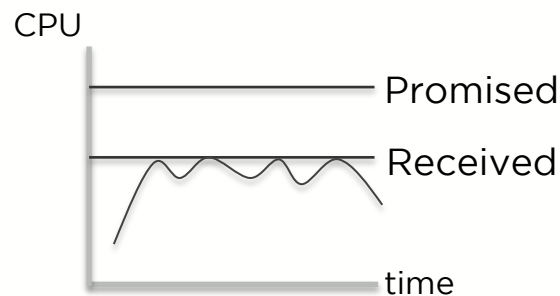
- Quantifies responsiveness to user or application requests
 - Throughput and latency delivered by the service – OS, application ...

What to measure

	Typical Measures
Servers, Cloud Instances	CPU queue length, memory swap rate, I/O latency
Applications, URLs, Web Services	Response time to requests – transactions, http requests/response, API calls

Considerations

- Focusing on the right metrics
 - Apps, hypervisors expose tons of metrics – which ones are the best measures of performance?
- Using the right statistical measures
 - How do you define “bad” user response time – average, max, percentile?
- Performance of cloud instances
 - How can you tell if your cloud instances are getting promised resources?



Cloud Instance Performance

What service fulfillment measures

- Quantifies timely fulfillment of lifecycle management tasks – e.g.
 - Service Requests, Patching, Anti-Virus, Network Configuration Backups ...

What to measure...

	Typical Measures
Service Requests	Time to resolve service requests
Server Patching	Patching frequency, time lag between patch release and patch roll out
Anti-Virus	Servers up-to-date on anti-virus signature

Considerations

- Focusing on the right service attributes to measure
 - E.g. Patches – all types of patches vs. only critical security patches

What Problem metrics measure

- Provide actionable insight into causes of problems

What to measure...

Type	Practical Measures
Common problem types	Problem and incident tickets by problem type
Failure modes of devices & applications	OS / application error codes

Considerations

- Identifying the right data sources to mine
 - Do your tickets contain enough information to classify problems accurately?
- Interpreting collected data
 - How do you make sense of OS / application error codes?

What Response metrics measure

- Quantifies how fast you are resolving incidents and problems

What to measure...

Type	Practical Measures
Incident and problem resolution times	Ticket resolution times
Incident and problem resolution rate	Ticket resolution rate
Correctness and completeness of resolution	Ticket re-opens, Ticket volume by problem type

Considerations

- Identifying the right data sources to mine
 - Do your tickets contain enough information to classify problems accurately?

What Capacity and Cost metrics measure

- How efficiently you are using capacity
- How much capacity you will likely need in the future
- How much your services are costing you to deliver

What to measure...

Type	Practical Measures
Resource utilization	Utilization of server, storage, switch/router interfaces, unused virtual machines
Demand forecasts	Number of VMs over time, average VM sizes over time
Hardware costs	Server and software license costs
Resource usage accounting	Compute, storage, network used by different types of virtual machines

Considerations

- Resource usage accounting is challenging in a shared infrastructure
- Identifying the right data sources

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High Performing Organizations are Metrics-Driven



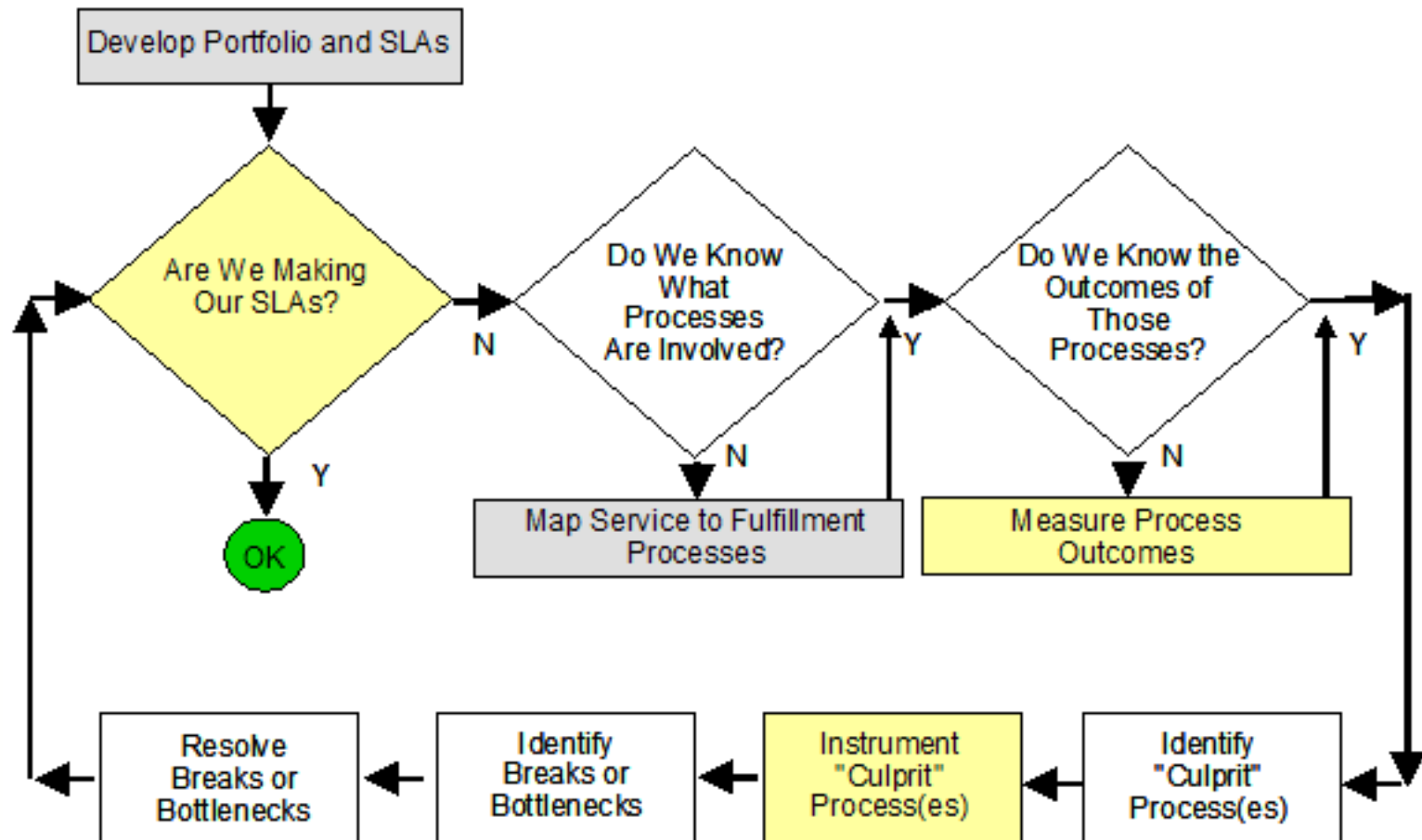
- Below-average performers show lower use of IT metrics across the board.
- Particularly true for external benchmarking.

Metric used	Type of IT organization (performance level self-identified by respondents) and rate at which metric is used		
	Top	Average	Below-average
“contribution to business value or business outcome”	56%	21%	9%
“comparison of benchmarking against others”	39%	15%	8%

Source: Kurt Potter, Gartner Inc., “Top Performers Use More Metrics,” 10 September 2012

- Gathering data for benchmarking takes time.
- If IT must gather data reactively in response to management demands, delay harms credibility.
- Metrics without a historical baseline will be questioned.
- Agreeing on right metrics and achieving apples-to-apples comparisons takes time.

Source: Kurt Potter, Gartner Inc., "IT Metrics: Intervention to Avoid Strategic Missteps with IT Benchmarking and IT Cost Transparency," 24 August 2012



Source: Colleen Young, Gartner Inc., "A Framework for Designing IT Service and Process Metrics," 18 September 2006

- Cloud gives organizations a choice between internal and cloud-based services
- IT self-service empowers line of business to make the choice
- Therefore embedding clear, understandable cost information in IT service catalog is critical to enable rational, optimal choices

1. IT understands benefits of service pricing and why transition is happening
2. List of IT services validated with LOB
3. Prices can be compared with market prices
4. Business case approved for transition
5. IT has chart of accounts to enable pricing
6. Organization understands resources needed for initiative to succeed

Source: Jim McGittigan, Barbara Gomolski , Gartner Inc., “Making a Smooth Transition to Service Pricing,” 15 June 2012

- Agility: Can IT service respond in real-time to changes in demand & business needs?
- Elasticity: How much can service's capacity scale upward and downward to match demand?
- Continuity: Maximum time between interruptions
- Consistency: Can variations in service levels be reduced?

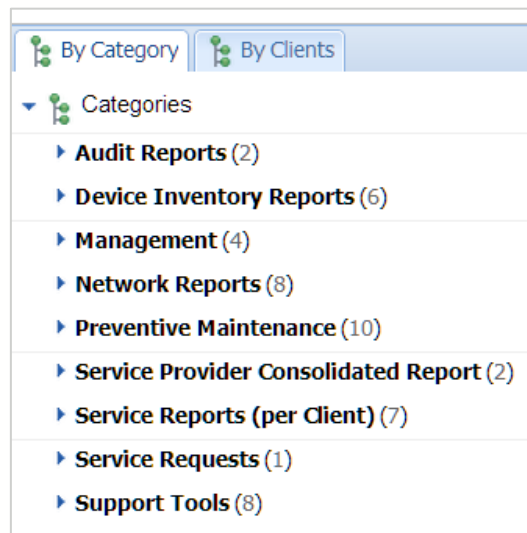
Source: Tapati Bandopadhyay, Gartner Inc., "Business-Aligned Metrics for IT Services in Cloud: Returns on Agility, Elasticity, Continuity and Consistency," 10 January 2012

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How Vistara can help



- **Data:** collects relevant data
 - 100s of built-in monitoring templates to collect relevant metrics across
 - Servers, applications, storage, and network
- **Analytics:** analyzes data to extract relevant metrics
 - Availability, performance, problem, response, ...
- **Reports:** presents metrics to help you gain insight
 - Reports to spot key trends and patterns in key metrics
- **Action:** single tool for managing entire system in response to metrics



- Service catalog
 - Internal and external services
 - Embedded cost model to drive rational choices by IT and LOB

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