Deploying a Dynamic Infrastructure
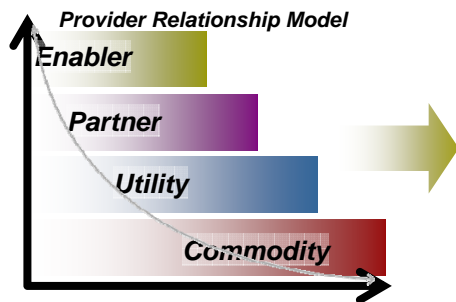
Service Management – A Program for Success

A collaborative approach is used to better understand objectives, define an architecture, roadmaps and program plan for deploying a Dynamic Infrastructure

1. Understand Strategy and Plans

Understand IT and Business Objectives

2. Understand Current Capabilities

Evaluate Current State to Identify Capability Gaps and Improvements

3. Develop Management Vision

Define Service Management Capabilities required to have achieve objectives

4. Identify Solution Architecture

Establish the conceptual architectural framework

5. Define Implementation Roadmap
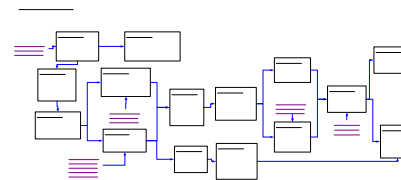
Prioritize and Sequence Design and Implementation Initiatives

6. Develop Business Case

Justify Initiatives and Develop Business Case

Deploying a dynamic infrastructure…. requires a programmatic approach

Virtualization
virtualization and consolidation solutions that reduce cost, improve asset utilization, and speed provisioning of new services.

Energy Efficiency
Address energy, environment, and sustainability challenges and opportunities across your business and IT infrastructure.

Asset Management
Maximizing the value of critical business and IT assets over their lifecycle with industry tailored asset management solutions.

Information Infrastructure
Helping businesses achieve information compliance, availability, retention, and security objectives.

Business Resiliency
Maintaining continuous business and IT operations while rapidly adapting and responding to risks and opportunities.

Security
End to end industry customized governance, risk management and compliance solutions.

Customer Example

Client Services – Enterprise View

Data Center Services + DR	Helpdesk Services	Networking Services	End User Services	Technical Services
• Data Center Ops • OS and Tech Sup • Database Admin • Media Mgmt • User admin • Backup and Recovery • Output Mgmt • Capacity Mgmt • Performance Mgmt • Configuration Mgmt	• Help Desk • Centralisation and Integration • Help Desk tools	▪ Fault Mgmt ▪ Problem Mgmt ▪ Change Mgmt ▪ Capacity Mgmt ▪ Performance Mgmt ▪ WAN Mgmt	• Desk Side support • Asset Mgmt • IMAC Services • LAN Server Admin • Software Distribution • Premise Network Device Mgmt • E-mail admin & mgmt	▪ SAP Basis Support

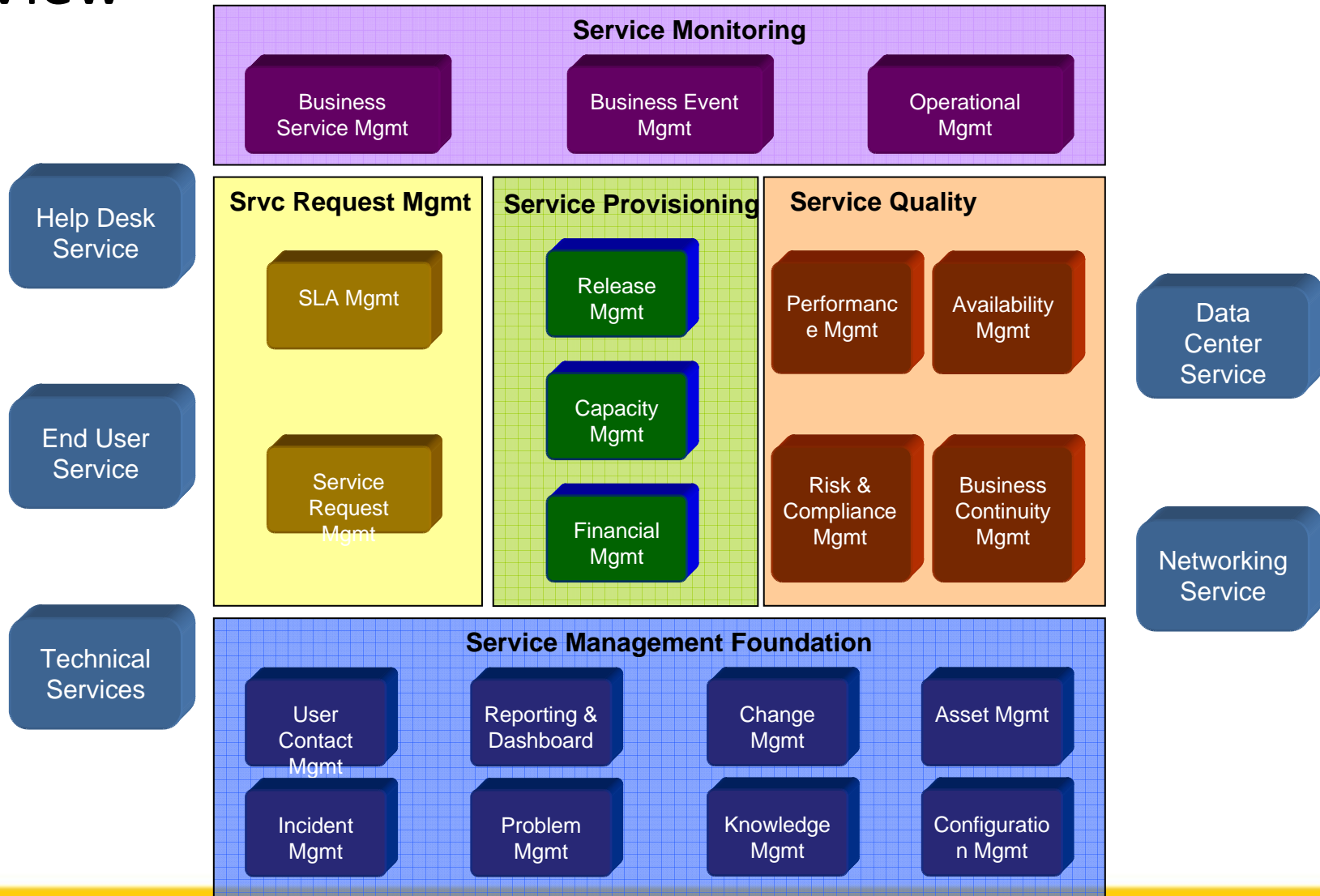**IT Strategy Planning**

Governance

Client – Infrastructure View

- Data center services
  - 250+ AIX / Wintel servers across 5 locations
  - 60 Service mgmt personnel
  - ERP, Mail, customer applications
- End-user services
  - 10000 PCs and laptops, 2000 printers
  - Call-center – 24 agents
  - Desk-side – 65 engineers
  - Remote management – 12 engineers

- Network management services
  - Device heterogeneity
    - Routers, L2/L3 Switches, Firewalls, Concentrators, SSL VPN Devices, Load balancers, Wan Accelerators, Wireless Access Point
    - From Cisco, Juniper, 3COM, Allied
  - Network heterogeneity
    - IBM Intranet, Client Intranet, VSNL, Internet

  - Service mgmt personnel – 11

Client Architecture – IT Capability View

Service Monitoring

| Business Service Mgmt | Business Event Mgmt | Operational Mgmt |

Srvc Request Mgmt

- SLA Mgmt
- Service Request Mgmt

Service Provisioning

- Release Mgmt
- Capacity Mgmt
- Financial Mgmt

Service Quality

| Performance Mgmt | Availability Mgmt |
| Risk & Compliance Mgmt | Business Continuity Mgmt |

Service Management Foundation

| User Contact Mgmt | Reporting & Dashboard | Change Mgmt | Asset Mgmt |
| Incident Mgmt | Problem Mgmt | Knowledge Mgmt | Configuration Mgmt |

Help Desk Service

End User Service

Technical Services

Data Center Service

Networking Service

Requirements summary

- **End-user services****
  - Regular back-up of end-user (VIP users) data from desktop / laptop in a secure manner
  - Generate Incident Report in a scheduled manner
  - Support self-help for end-users to perform repetitive tasks such as 'reset password'.
  - Analyze & report the incident per configuration-item
  - Analyze the trends in end-user incidents - by category, by severity, by Age..
  - Remotely monitor and perform preventive maintenance of the network printers

- **Data-center services****
  - Fine-tune the threshold and other reactive alert configuration settings in the existing monitoring tools
  - Monitor SAP backups and reduce the backup window increasing availability of SAP application
  - Real-time dashboard for performance & availability events/metrics (originating from systems, & applications)
  - Increase the coverage for performance and availability metrics / alerts to SAP
  - Proactive alerting (trending & predictive analysis)
  - SLA monitoring
  - Capacity planning using the information from SRM reports

- **Data-center services – Storage****
  - Monitor and alert for storage system's usage
  - Manage / administer the storage systems – such as creating volumes, dynamically allocating to systems, etc…)
  - Generate report on the usage trend of the storage systemz

** Only the Critical & High priority requirements from each tower

Solution Design – Guiding principles…

- Use the plusOne to deliver client value "one product" at a time.
  - plusOne Adoption route: Best practices & proven approaches for deploying Tivoli software to support the business scenarios.

- plusOne Approach - Client will realize business-value incrementally
  - Start a **scenario** with the description of the Client's business destination, and the technology for achieving it.
  - An **adoption routes** will guide Client to the end state.
  - In each **phase** (in the adoption route) a new product("+1") is added.
  - Proceed on the route until the destination ("scenario") is reached.
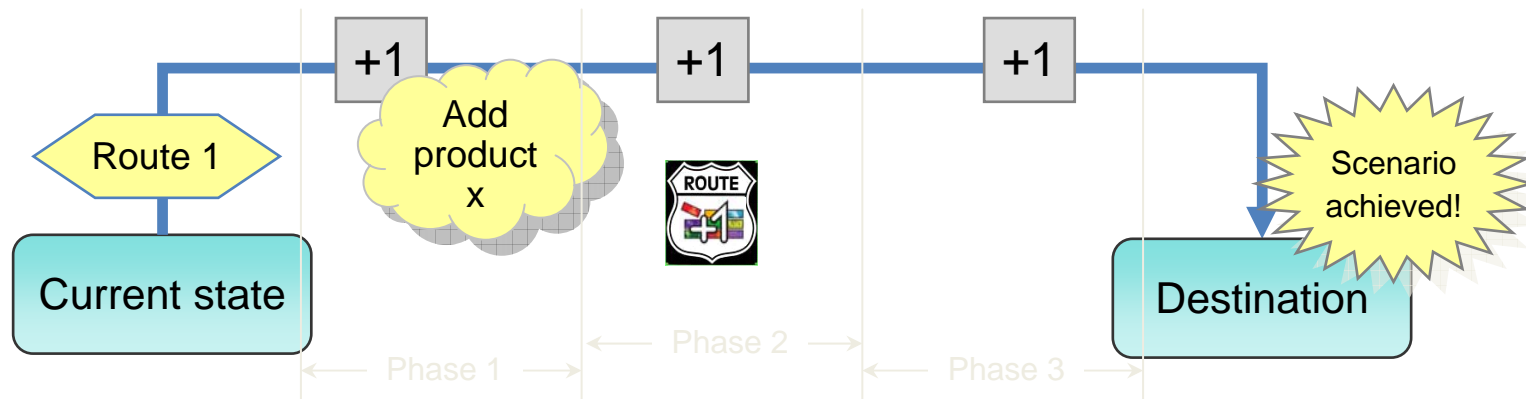
Data-center storage services

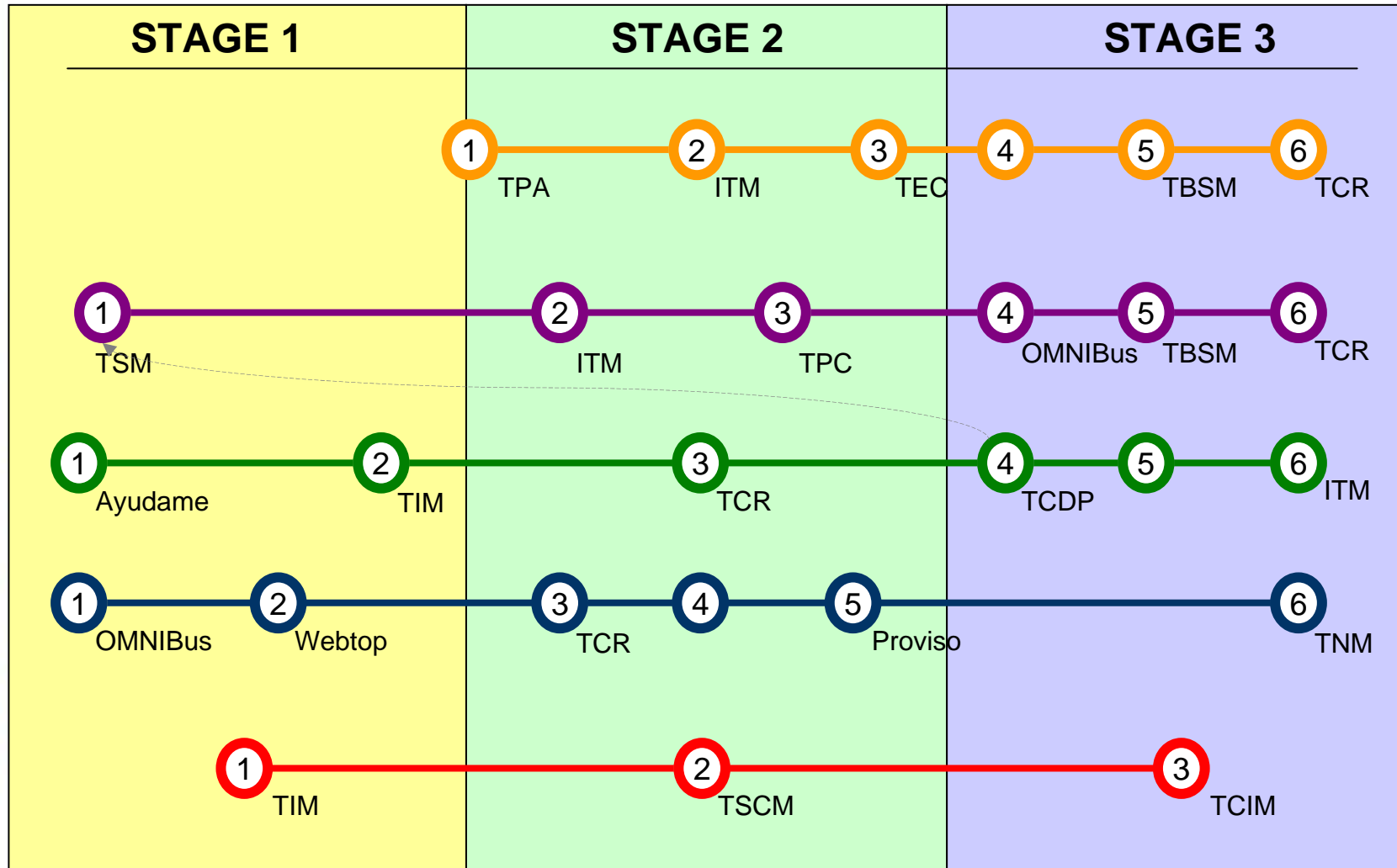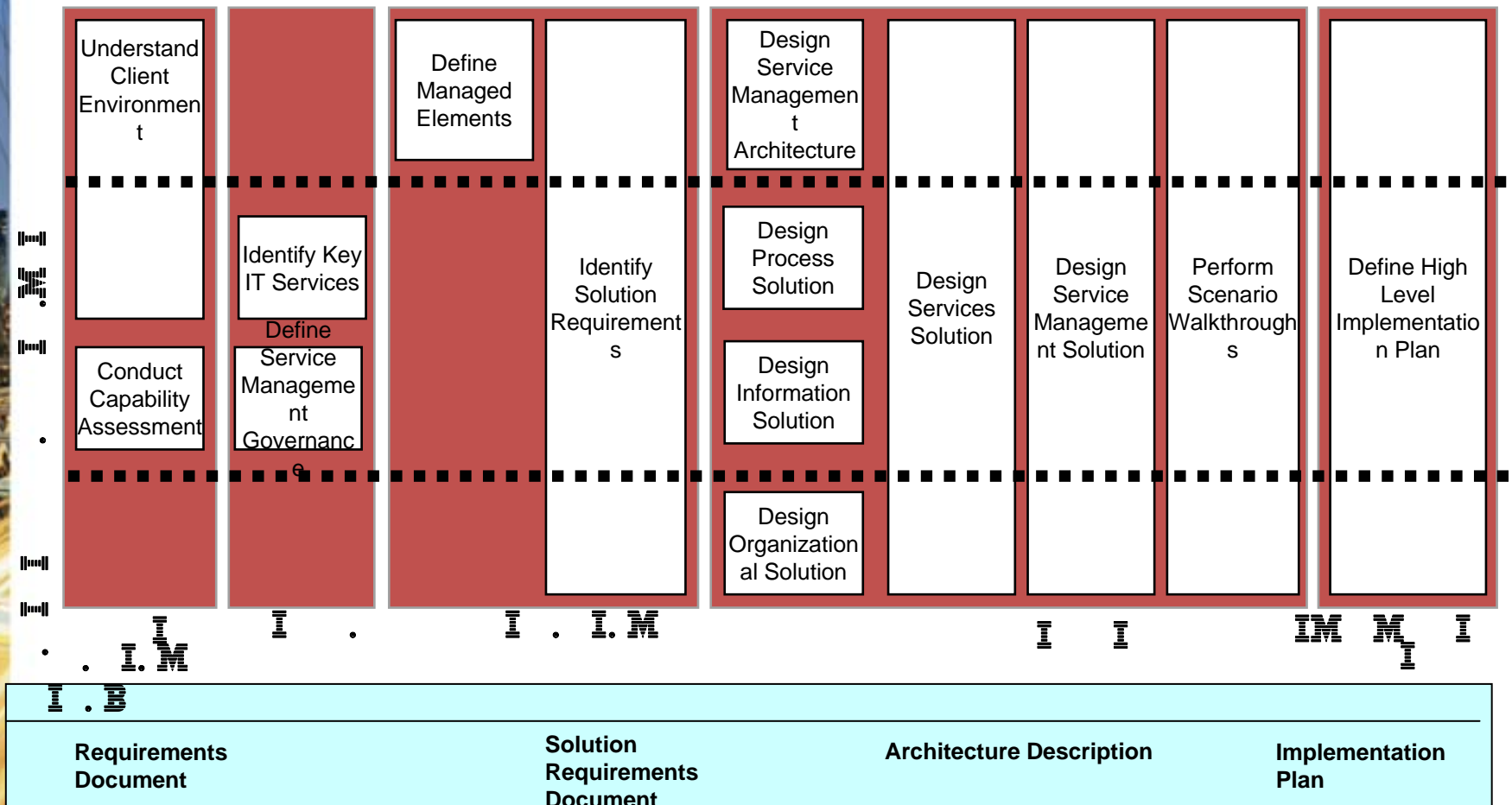| Before Transformation	After Transformation
14-15 hrs to backup 8TB of filesystems/ databases. Off-line backups for 24 hrs, once a month.	Reduce the time-taken to take offline backup Increase SAP system availability **(50-60% reduction in backup window for SAP & filesystem)**
50% of false calls Less no. of events are captured	Increase in the number of systems & business processes monitored **(All the valid alerts)** **(Increase the no. of events monitored)**
30% effort to generate weekly storage report per application usage,	Management & day-to-day administer the Storage systems. Monitoring Storage usage & avert major incidents **(reduce from 30% to 10% effort)**

Data-center storage services

- Adoption Route
  - Start – Improve the throughput of the backup operation for SAP; Provide availability monitoring of SAP applications & business processes
  - Proceed – Support availability & performance monitoring of storage systems; Automatically raise incidents based on events from SAP or storage system;
  - Conclude – Support for SLA monitoring, & predictive capacity planning for storage system

	Phase Name	Software added this phase	Route accumulation	Current baseline	Resulting business value
1	Improve the throughput of SAP backup operations	TSM	TSM	14-15 hrs to backup 8TB of filesystems/ databases. Off-line backups for 24 hrs, once a month.	Reduce the time-taken to take offline backup Increase SAP system availability **(50-60% reduction in backup window for SAP & filesystem)**
2	Monitor SAP for availability metrics	IBM Tivoli Monitoring (ITM) with Tivoli data-Warehouse (TDW)	TSM + ITM	50% of false calls Less no. of events are captured	Increase in the number of systems & business processes monitored **(All the valid alerts)** **(Increase the no. of events monitored)**
3	Monitor & managing the Storage systems	TotalStorage Productivity Center (TPC)	TSM + ITM + TPC	30% effort to generate weekly storage report per application usage,	Management & day-to-day administer the Storage systems. Monitoring Storage usage & avert major incidents **(reduce from 30% to 10% effort)**
4	Automatically raise incidents for alerts from SAP & Storage systems	Netcool/OMNIBus	TSM + ITM + TPC + OMNIBus		Improve problem resolution cycle time
5	SLA Monitoring	Tivoli Business Service Manager (TBSM)	TSM + ITM + TPC + OMNIBus + TBSM		Dynamically optimize the 'SLA impact' to 'Operational cost' ratio Reduce in the number of escalations
6	Capacity Planning	Tivoli Common Reporting (TCR)	TSM + ITM + TPC + OMNIBus + TBSM + TCR		Reduce staff time spent in costing activities Reduce dependencies on people instinct

I

II

Composite Approach

IBM

	STAGE 1	STAGE 2	STAGE 3

① TPA — ② ITM — ③ TEC — ④ — ⑤ TBSM — ⑥ TCR

① TSM — ② ITM — ③ TPC — ④ OMNIBus — ⑤ TBSM — ⑥ TCR

① Ayudame — ② TIM — ③ TCR — ④ TCDP — ⑤ — ⑥ ITM

① OMNIBus — ② Webtop — ③ TCR — ④ — ⑤ Proviso — ⑥ TNM

① TIM — ② TSCM — ③ TCIM

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Solution Design Scope

Understand Client Environment		Define Managed Elements		Design Service Management Architecture				
	Identify Key IT Services		Identify Solution Requirements	Design Process Solution	Design Services Solution	Design Service Management Solution	Perform Scenario Walkthroughs	Define High Level Implementation Plan
Conduct Capability Assessment	Define Service Management Governance			Design Information Solution				
				Design Organizational Solution				

Requirements Document		Solution Requirements Document	Architecture Description			Implementation Plan

What the India Software DI Lab Offers
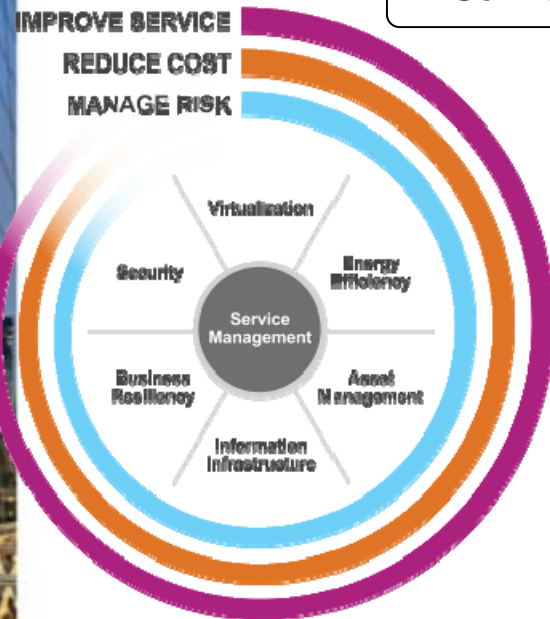
* Service Management

Provide visibility, control and automation across all the business and IT assets to deliver higher value services.

Asset Management

Maximizing the value of critical business and IT assets over their lifecycle with industry tailored asset management solutions.

* Virtualization

Leadership virtualization and consolidation solutions that reduce cost, improve asset utilization, and speed provisioning of new services.

* Energy Efficiency

Address energy, environment, and sustainability challenges and opportunities across your business and IT infrastructure.

* Business Resiliency

Maintaining continuous business and IT operations while rapidly adapting and responding to risks and opportunities.

* Security

End to end industry customized governance, risk management and compliance solutions.

Information Infrastructure

Helping businesses achieve information compliance, availability, retention, and security objectives.

Dynamic Infrastructure @ IBM India Software Lab (ISL)

- **ISL, Pune**

  One of the largest product development centers for IBM supporting multiple brands

  Complex heterogeneous production IT environment that is evolving with the ever-increasing needs of thousands of developers & testers

Before

- Increasing capital costs & lab proliferation

- High energy consumption

- Lack of consistent asset usage tracking

- Silos of automation with inconsistent reporting

After… and the journey continues

- Visibility into assets & relationships using discovery

- Smaller lab footprint with virtualization

- Energy monitoring for policies to minimize usage

- Automated monitoring & provisioning

- Data protection and recovery services

FIXED

DYNAMIC

ISL DI Lab Value Proposition

Lab Infrastructure

- Lab capacity of several hundreds of physical servers, and thousands of virtual servers Complex heterogeneous environment with UNIX and Windows, Sun, HP
- Remote systems management with 97 % coverage through KVM wrt remote access
- Consolidated lab infrastructure & operations to reduce cost & overhead by over 20%

Service Management

- Automated server provisioning allows ISL to reduce the cycle time by more than 60% for service requests, which in turn has reduced the labour & administrative costs.
- Visibility and control across all lab assets through integration of IBM Tivoli discovery and monitoring solutions into the infrastructure. Besides a reduction of operational complexity and significant cost avoidance, this resulted in productivity gains and provided insights for optimization.

Energy Efficiency

- The new ISL lab design, which includes low/high density zones, in row cooling, energy consumption metering is expected to reduce power utilization when combined with the energy consumption monitoring and management.
- Monitoring and management of energy consumption in the lab is showcased by Tivoli monitoring for energy management using IBM System Director AEM.
- Virtualization is helping reduce operational costs and reclaim floor space while at the same time simplifying management of the infrastructure. Combined with the visibility and control practices, this facilitates increased availability of assets and allows the lab to deliver resources where they were needed most.
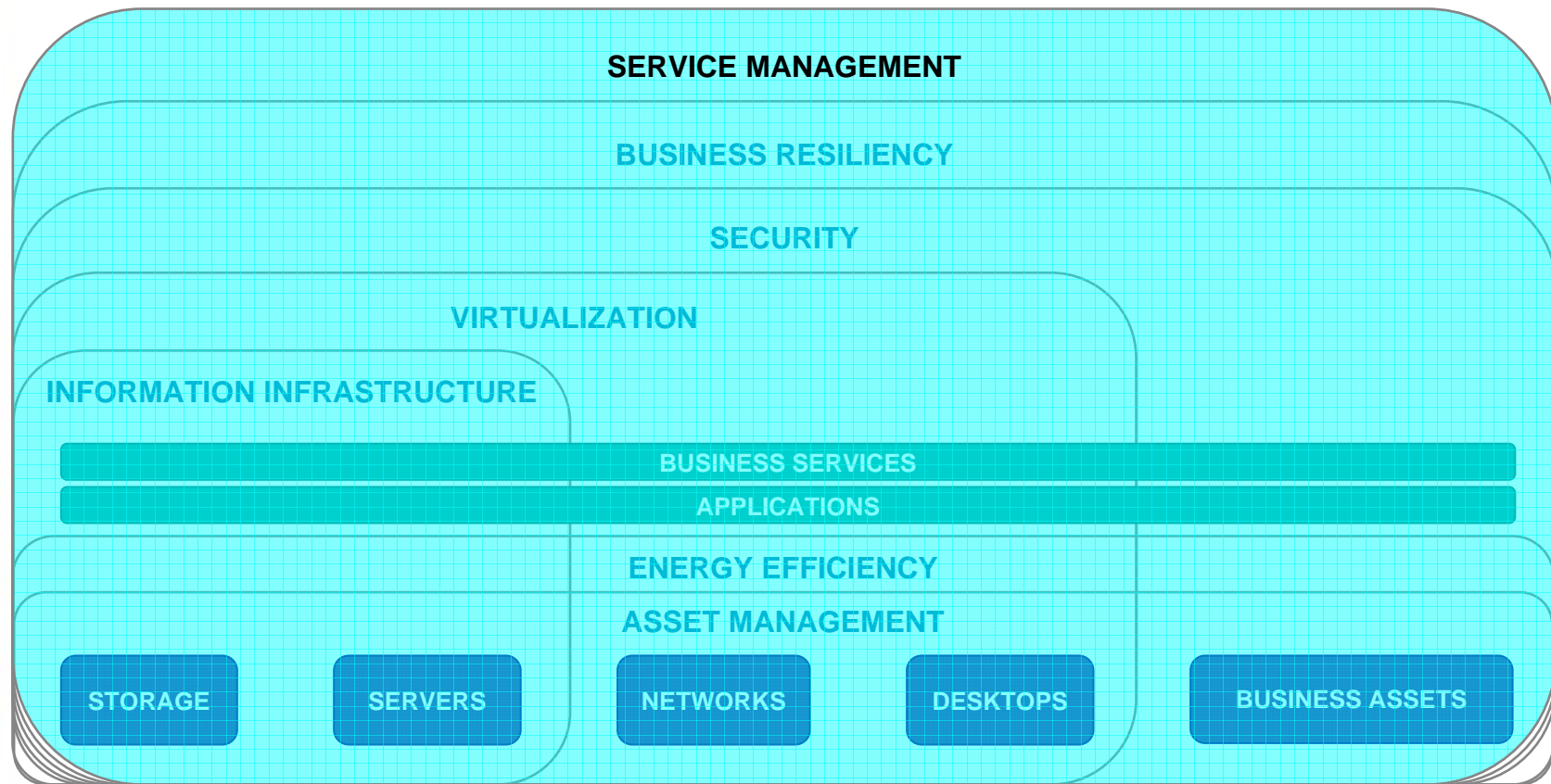
Storage, Data Backup & Recovery

- The data back-up & recovery features through Tivoli Storage Manager have reduced the amount of time needed to back-up and restore critical systems. The new solution has reduced the time taken for restoration from days to a matter of hours.
- The lab is a heterogeneous environment that includes Storage Area Network (SAN) management through IBM's solutions (including Tivoli Productivity Centre & SAN Volume Controller)

BACKUP

Service Management is the overarching management capability

SERVICE MANAGEMENT

BUSINESS RESILIENCY

SECURITY

VIRTUALIZATION

INFORMATION INFRASTRUCTURE

BUSINESS SERVICES

APPLICATIONS

ENERGY EFFICIENCY

ASSET MANAGEMENT

STORAGE   SERVERS   NETWORKS   DESKTOPS   BUSINESS ASSETS

IBM Service Management connects all components of Dynamic Infrastructure

IBM Service Management provides solutions and expertise you need to design, build and manage a dynamic infrastructure. IBM connects all elements of the dynamic infrastructure so that organizations can:

- Leverage and integrate IT and 'smart' business assets to deliver next generation services.

- Deliver higher quality service to customers and business partners at a lower cost

- Respond rapidly to change and support new business needs through greater agility

Service Management and Virtualization

Virtualization adoption can take many forms from physical consolidation to abstraction and pooling to cloud computing – all of which must be monitored, provisioned, controlled and updated.

- Monitor health and performance with visibility to capacity trends and available resource pools
- Achieve dynamic discovery, change management and provisioning for just-in-time capacity allocation
- Manage and align virtual systems and storage resources with business objectives
- Automate workloads and system functions to optimize and balance across virtual systems
- Accurately assess usage in virtualized environments to better determine IT resource and expense justification

Reduce costs, improve service quality and achieve a higher degree of automation across your organization

Service Management and Energy Efficiency

Data Center energy use has doubled in the last 5 years and now accounts for 1.5% of all energy used in the U.S. If this trend continues, the IT industry could have a larger carbon footprint than the aviation industry.

Single solution across IT and facilities:

- Monitoring for energy management
- Energy usage tracking, cost accounting & chargeback
- Asset & facilities management
- Energy aware provisioning

- *Optimize energy costs* and deliver new services with existing footprint

- Gain intelligent *realtime and predictive* energy management decisions

- React quickly to energy spikes – and take automated actions based on service levels

Reduce costs, optimize power consumption and better manage system and facilities power usage.

Service Management and Asset Management

Proliferation of smart assets and on-board IT has increased asset sophistication and is driving the convergence of the digital and physical worlds.

- Manage all critical assets throughout their life, extend their life and maximize their value to the enterprise

- Mitigate license, regulatory, environmental and safety compliance risk while reducing associated cost

- Improve *total cost of ownership* by continuously reducing asset costs throughout their lifecycle

- Gain a single solution to manage *all types of assets*: Production, Delivery, Transportation, Facilities, Infrastructure and IT

Manage the IT and non-IT assets across their entire lifecycle to lower cost, mitigate risk, and better align assets with business goals.

Service Management and Information Infrastructure

Dynamic Infrastructure drives staggering volumes of information. 4 Exabytes in 2008. 200 Million MySpace Users. 31 Billion Searches per month.

- Gain rapid *recovery, data reliability and integrity* across the Information Infrastructure
  - Data protection
  - Data replication
  - Storage resource mgmt
  - Storage infrastructure mgmt
- Achieve policy-based management of information access, retention, and disposal of data aligned to business controls.
- Create *complete transparency* across the information lifecycle for all business data and records.
- Effectively *prevent disruptions* due to data loss

Cost effectively manage, backup, store and protect massive volumes of data. Tap information for competitive advantage.

Service Management and Business Resiliency

Information growth continues unabated making it more critical than ever to ensure a secure, resilient infrastructure.

Unlock the business value of information with a resilient infrastructure for securely storing information and mitigating business risks

- Lay a *foundation for system recovery* and continuous service availability in the event of a disaster
- *Comply with regulatory standards* by demonstrating ability to recover from system interruptions
- Service management for business resiliency provides:
  - Continuous availability of data and services
  - Reduced backup times
  - Performance and availability solutions
  - Security and hardware availability

Cost-effectively support regulatory measures.   Ensure service availability and facilitate better planning.

Service Management and Security

IBM

Not all risks are created equal and organizations must secure the enterprise against a barrage of new and evolving sophisticated threats – which can be data, business or event driven.

IMPROVE SERVICE
REDUCE COST
MANAGE RISK

Virtualization
Security
Energy Efficiency
Service Management
Business Resiliency
Asset Management
Information Infrastructure

- Strategically manage risk end-to-end across all security domains. IBM's framework-based security offerings provide the solutions and expertise you need to:
  - Enable business change through a foundation of *flexible security control*
  - Reduce the complexity of security controls
  - Ensure *secure service delivery*
  - Protect against internal and external threats
  - Meet operational requirements to *address compliance measures*

Deliver improved agility and cost–effective control over your risk posture and incident response.