



Best Practices In Enterprise Network Management



Introductions

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- Practice Manager, Enterprise Management, Magnus.net
- Developed network design and management tools since the early days of the Internet. Worked with SNMP based management since 1989. VP Network Management Architecture at State Street Corp from 2001-2007.

Company: Magnus.net

- Network Infrastructure Practice
 - Next Generation Enterprise Network Architecture (MPLS, BGP Core and IPv6)
 - Network Security (both perimeter security and data protection in complex peer to peer environments)
- Enterprise Network Management Practice
 - Fault and Performance management for networks, systems and applications
 - Management Tools Architecture
 - Leveraging Management Tools

Major Points

APPLY STANDARD REFERENCE MODEL TO YOUR PROBLEM SPACE

- USE ITIL AND IT MATURITY MODEL AS REFERENCE GUIDE

MAKE SERVICE DESK FOCAL POINT IN SERVICE SUPPORT

- MATURITY OF SERVICE DESK IS REPRESENTATIVE OF OVERALL IT MATURITY

ELEVATE SERVICE SUPPORT PROCESSES FROM SILOS TO SERVICE DESK

- CONTROL AND COORDINATE SERVICE SUPPORT ACROSS SILOS; ALLOWS SILOS TO FOCUS ON SERVICE DELIVERY

LEVERAGE TOOLS TO BRIDGE GAP BETWEEN SERVICE DELIVERY, SERVICE SUPPORT AND SILOS

- TRANSPARENT ACCESS TO ENTERPRISE MANAGEMENT DATA (EVENT DRIVEN)

LEVERAGING TOOLS IS FAR MORE THAN JUST INSTALLING TOOLS

- ARCHITECTURE IS A ROADMAP TO LEVERAGING TOOLS; EXTRACTING VALUE IS A DATA MINING EXERCISE

NETWORK MANAGEMENT SOLUTIONS MUST BE MANAGED JUST LIKE OTHER CRITICAL IT RESOURCES

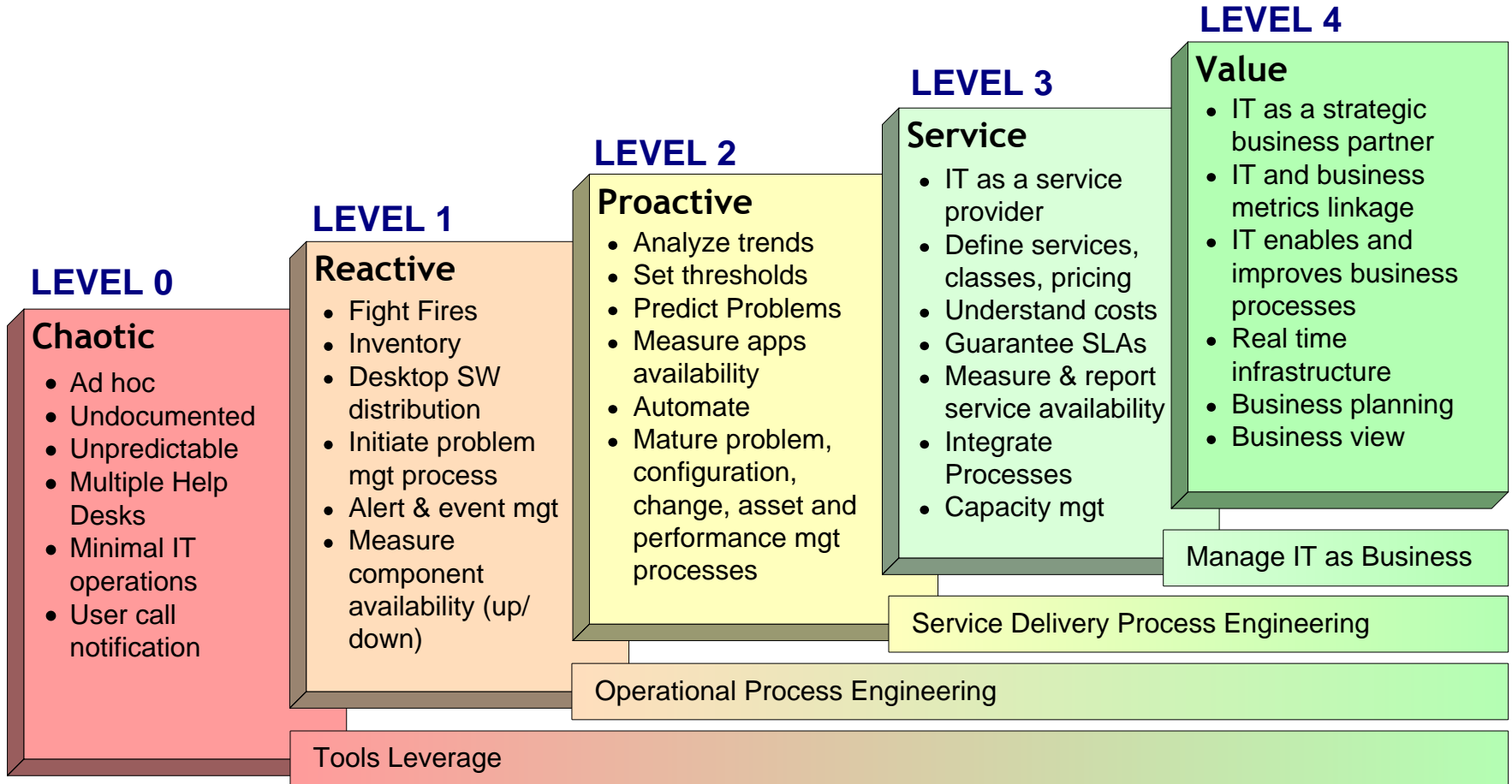
- CONTINUOUS PROCESS IMPROVEMENT AND OPTIMIZATION; IF NOT 100% ACCURATE OPEN A TICKET !



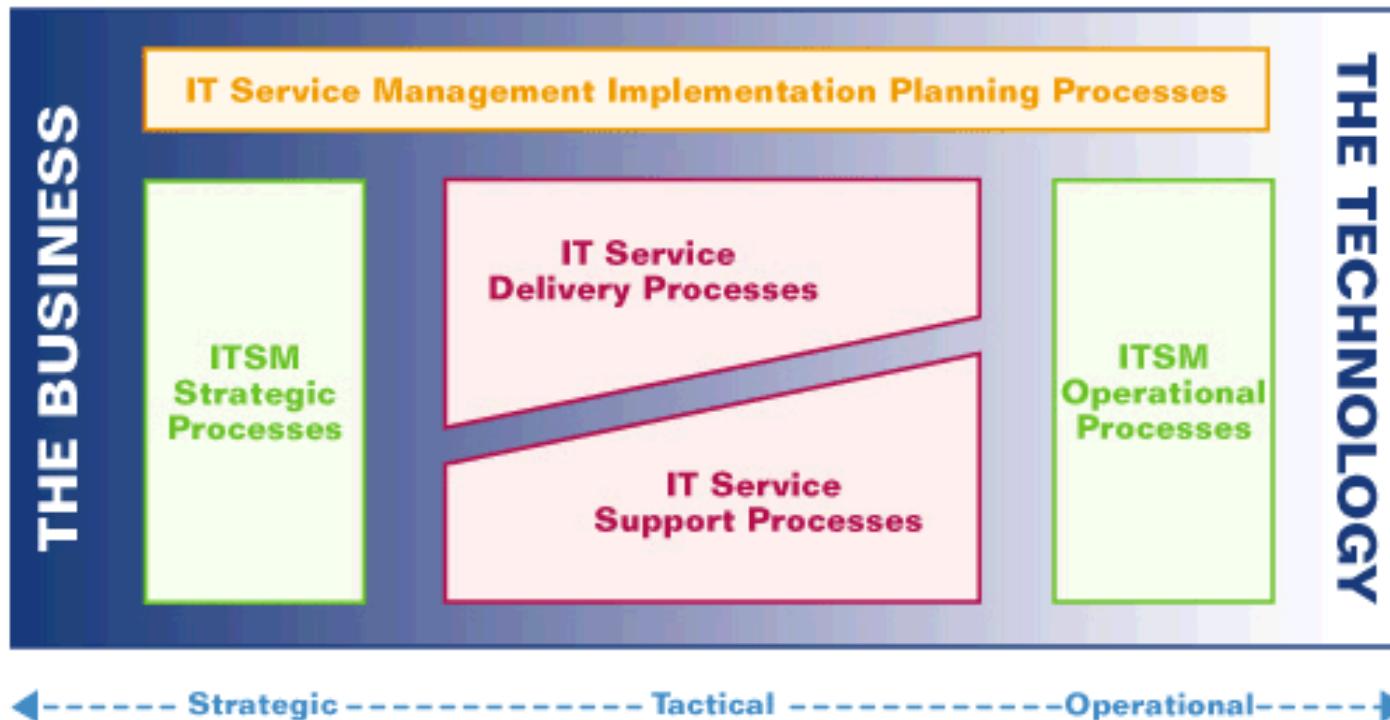
"...service level management and applications management problems are areas that cannot be entirely resolved using tools. Enterprises should establish effective organization and processes before investing in any tool."

Gartner Group

Gartner IT Maturity Model

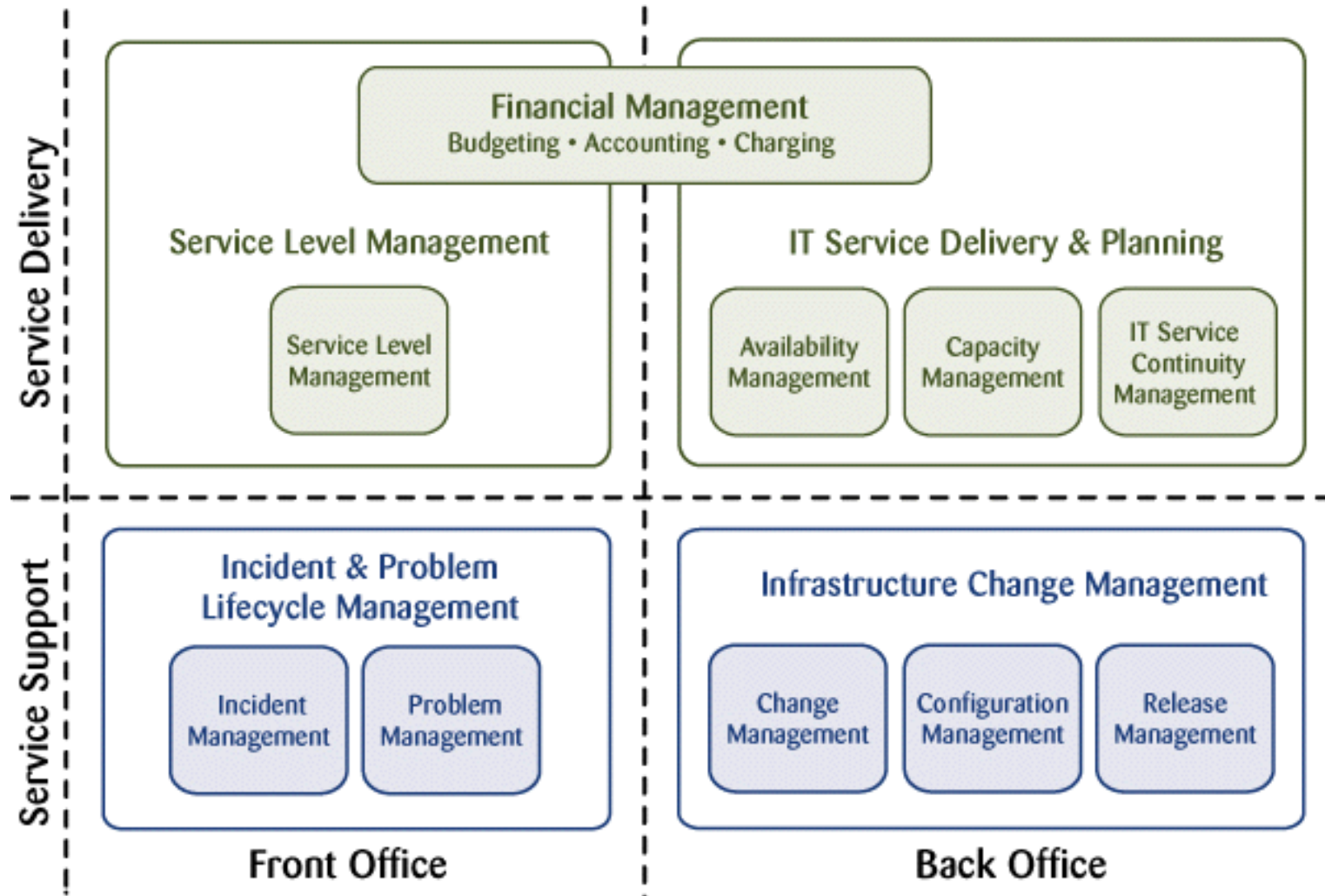


IT Service Management

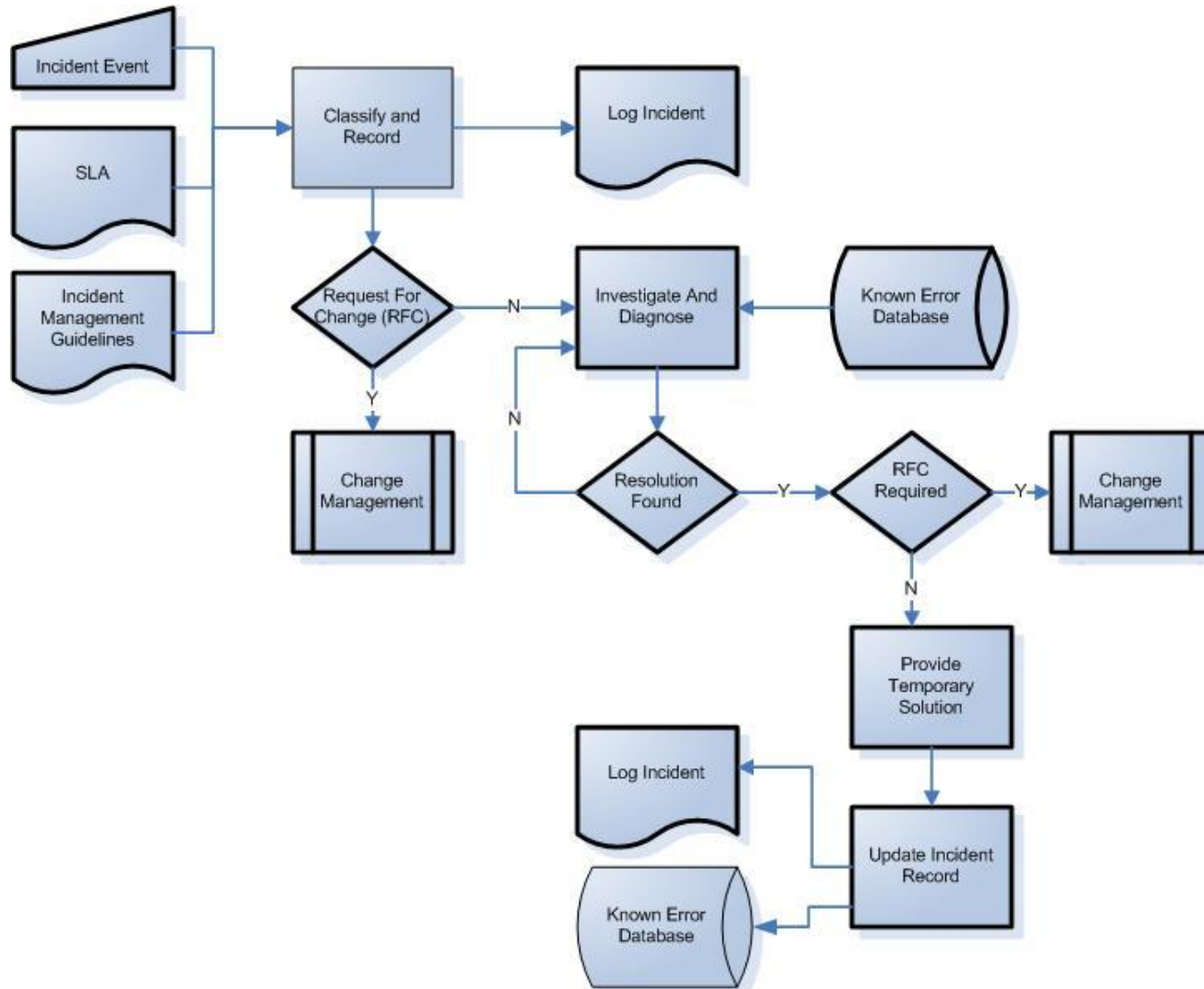


- IT Service Management (ITSM) is the systematic approach to the planning, development, delivery and support of IT services for the enterprise.
- The ITIL/BSI 15000/ISO 20000 has been adopted as the de facto standard for best ITSM practices.

ITSM Core Processes

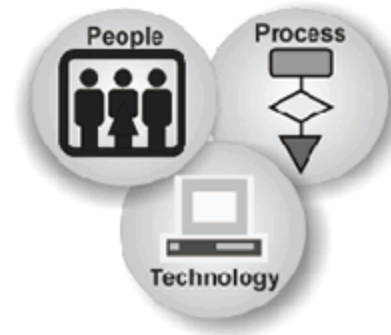


ITIL Workflow For Incident Management

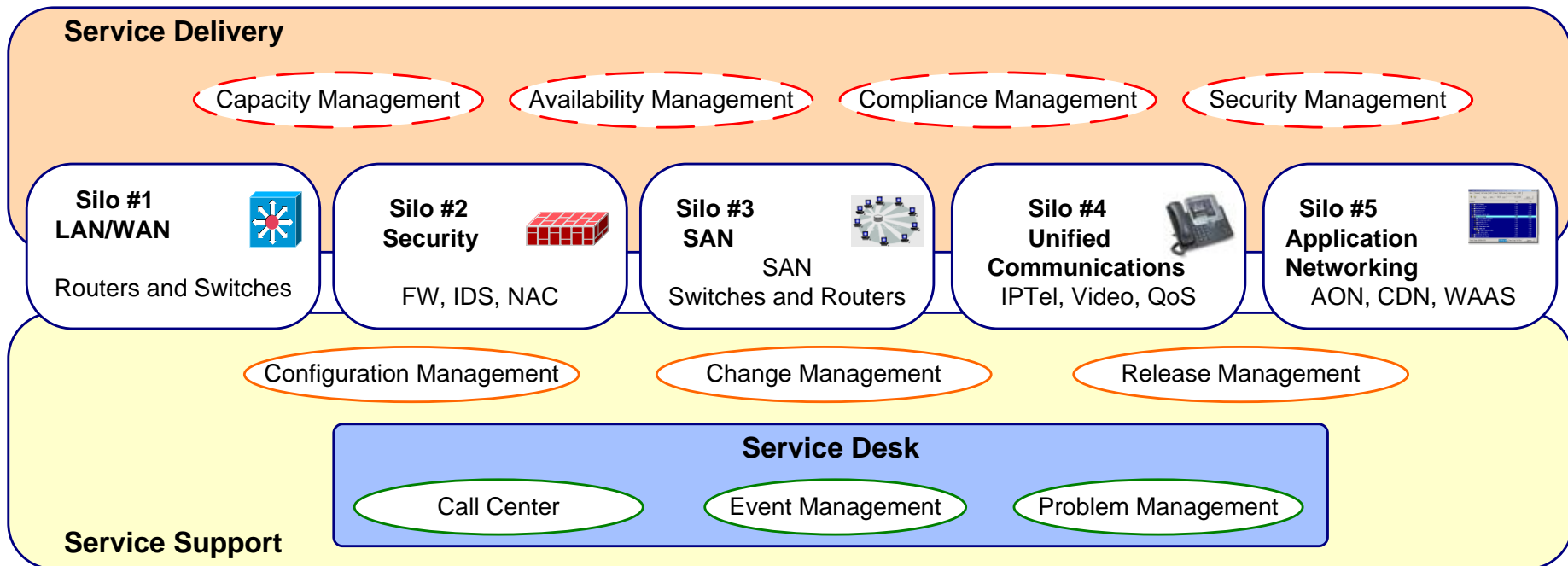


Service Desk

- Is Critical ITSM function that integrates many Service Support processes and represents IT as a Service Provider.
- Role and capabilities of Service Desk usually reflective of the maturity level of the entire IT organization.
- Service Desk blends people, process, and technology together to deliver a valuable business services:
 - ☑ Provides single point of contact for end users of IT Services acting as a control point for all communications
 - ☑ Manages the resolution of incidents and the restoration of service as quickly as possible.
 - ☑ Monitors the Incident Management process. Coordination rapid restoration of IT services.
 - ☑ Provide business process support (desirable state).



Service Desk – First Generation



- Call Center is a primary function
- Service Desk has limited or no visibility into configuration and change management
- All incidents are escalated to technology silos

Service Desk – Second Generation

Service Delivery

Capacity Management

Availability Management

Compliance Management

Security Management

Silo #1
LAN/WAN



Routers and Switches

Silo #2
Security



FW, IDS, NAC

Silo #3
SAN



SAN
Switches and Routers

Silo #4
Unified Communications



IPTel, Video, QoS

Silo #5
Application Networking



AON, CDN, WAAS

Call Center

Event Management

Change Management

Configuration Management

Problem Management

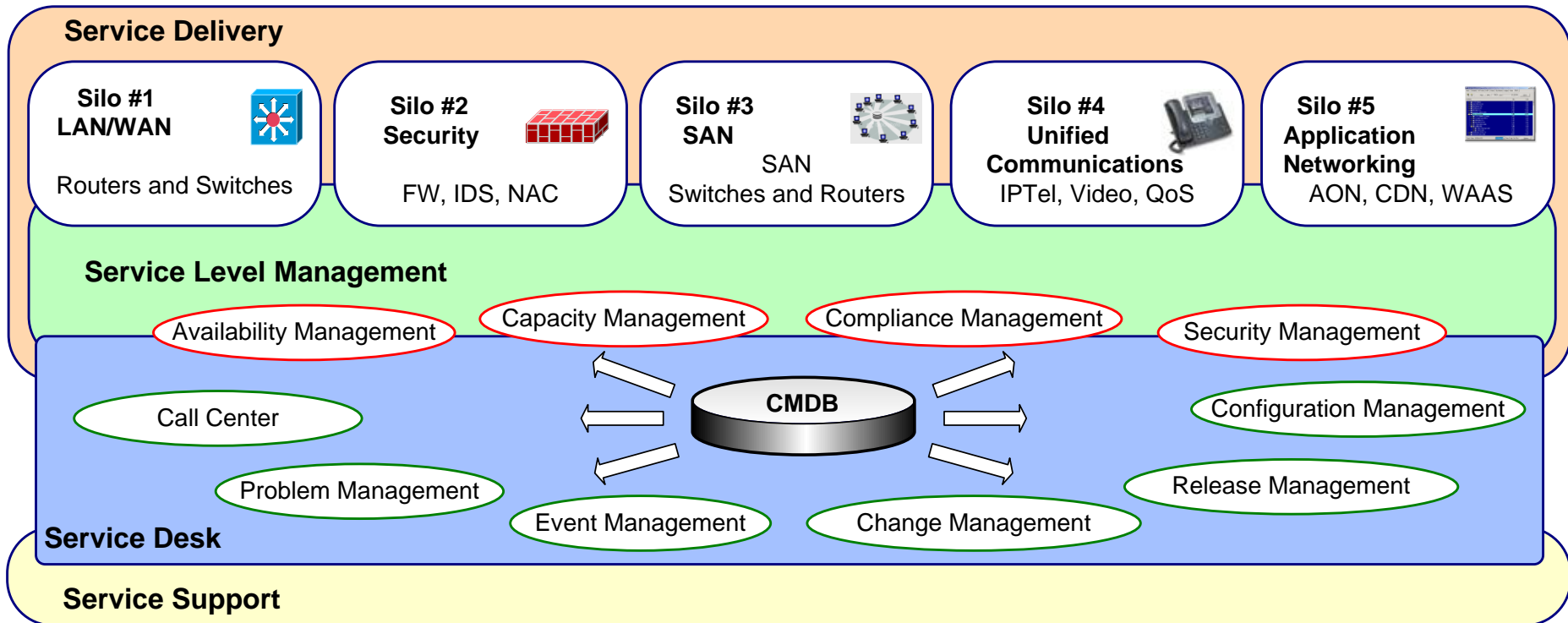
Service Desk

Release Management

Service Support

- Change, Configuration and Release management processes are consolidated within Service Desk
- Service Desk becomes a resolution center
- Silos are focusing on Service Delivery and Service Level Management

Service Desk – 3rd Generation

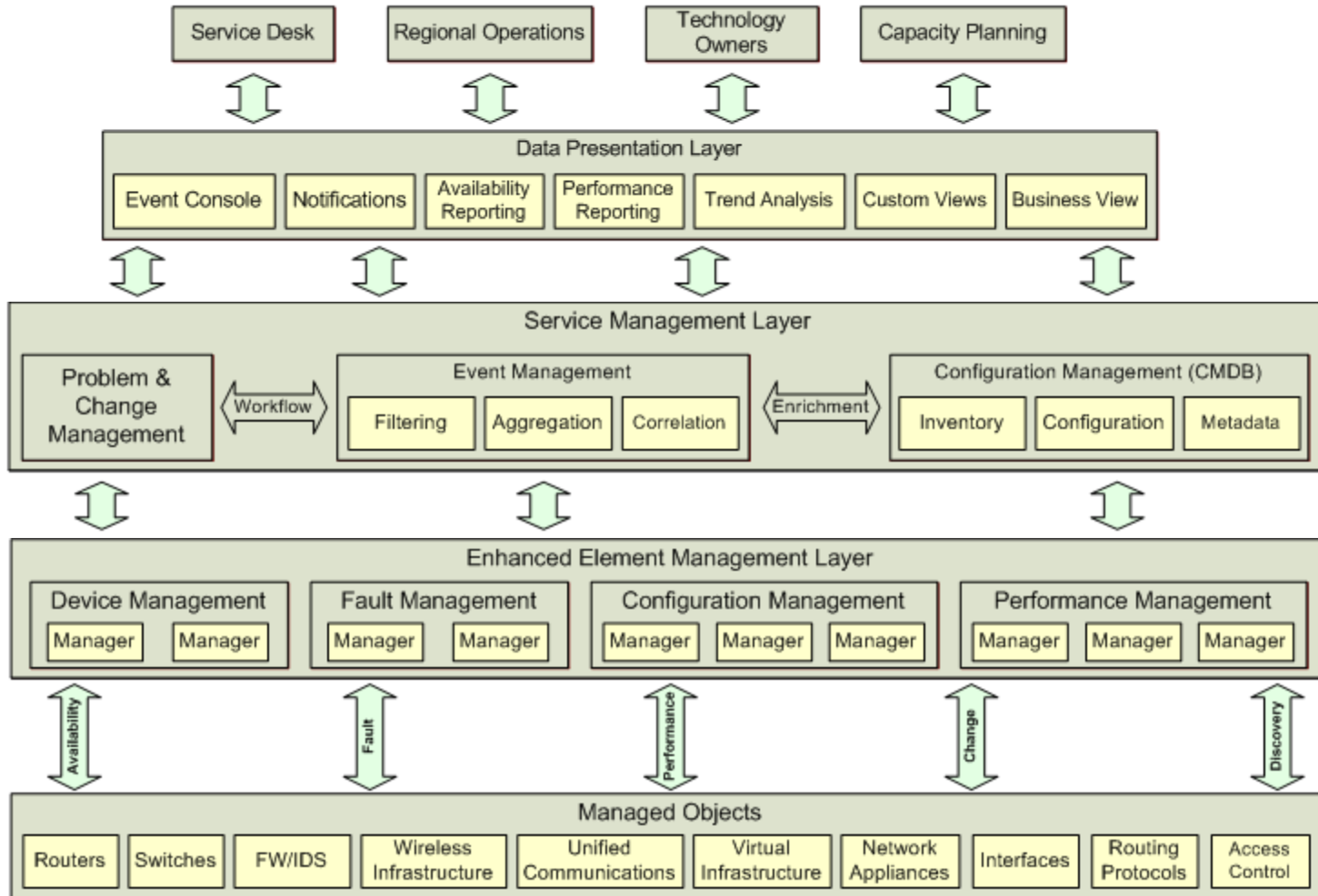


- Service Desk is a focal point of Service Support and Back Office Service Delivery
- Global namespace for Enterprise Management Data
- CMDB provides integration between systems and processes

Global Namespace

- Global Namespace Is Critical To Integration of Network Management Tools
- Common Information Model (CIM) is The Industry for Global Namespace
 - get ObjClass:ObjName:Attribute
 - exec ObjClass:ObjName:method args
 - ObjClass:ObjName:EventName:Instance
- CIM Provides A Top Down Approach To Referencing Enterprise Management Data And Events

Tools Architecture



Magnus.net Advantage

Leveraging Tools and Service Desk Maturity

- ALIGNMENT OF PEOPLE, PROCESSES, SOPS, DOCUMENTATION VIA TOOL INTEGRATION
- INTEGRATION OF BACK OFFICE SERVICE DELIVERY PROCESSES INTO SERVICE DESK
- GLOBAL NAMESPACE
- SERVICE DESK PORTAL IMPLEMENTATION
- SILO ALIGNMENT VIA SERVICE DESK INTEGRATION OF ELEMENT MANAGEMENT TOOLS
- CONSOLIDATION OF NETWORK, SYSTEM, STORAGE, DATABASE, APPS, SECURITY EVENTS
- END-TO-END NETWORK FAULT, PERFORMANCE AND SERVICES MONITORING
- NOC DESIGN AND IMPLEMENTATION

Network Management

- DATA NETWORK MONITORING OF ROUTER, SWITCHES, CCS, FIREWALLS, APPLICANCES
- VOIP MONITORING (ROUTERS, SWITCHES, VOICE GATEWAYS, CALLMANAGERS, SENSORS)
- ROUTER PROTOCOL (OSPF, BGP) MONITORING
- MULTICAST, QOS, WIRELESS MANAGEMENT
- NETWORK COMPLIANCE MONITORING
- TRAFFIC MONITORING (SNIFFER, NETFLOW, RMON)
- IDENTIFICATION OF NETWORK/APPLICATION RESPONSE ISSUES
- ADVANCED NETWORK EVENT MANAGEMENT AND ACTION ON EVENT PROCESSING

Service Management

- ITSM
- ITIL
- Process Maturity

Project Management

- PMI Methodology
- Project Delivery Expertise

Network Design

- BGP Core Architecture
- WAN and Campus MPLS

EXAMPLE OF LEVERAGING TOOLS

CONSOLIDATE EVENT MANAGEMENT

APPLY GLOBAL NAMESPACE TO EVENT MANAGEMENT

ENSURE HIGH ACCURACY IN ALARM NOTIFICATION

ENTERPRISE WIDE TRAFFIC ACCOUNTING

ENTERPRISE WIDE CONNECTIVITY MONITORING

CONFIGURATION COMPLIANCE

SERVICE DESK WEB PORTAL

DAILY, WEEKLY, MONTHLY BENCHMARK METRICS

QUALIFICATIONS

Experienced at large scale monitoring solutions for numerous network technologies

- VoIP, Wireless, DWDM, MPLS, WAAS, QOS, Brocade/McData Monitoring, NetApp/Acopia, Firewall/IDS.

Experienced with leading vendor and opensource management tools

- IBM Netcool/Tivoli, HP/Openview, EMC/SMARTS, Cisco/Ciscoworks
- Lucent VitalNet, Concord E-Health, NerveCenter, NetScout, NerveCenter, NETQOS, Coradient, CACTI/RRDTOOL

Programming skills available for custom system engineering development

- e.g. HTML/Java/Perl/TCL/Python/CGI Web Reporting, SQL database integration, custom SNMP/Expect monitoring

Performance, Traffic, and End-User Experience monitoring

- Includes widespread use of Cisco IP SLA and NetFlow, synthetic robot monitors (i.e. Openview OVIS, NetCool ISM) and real-time monitors (i.e. Coradient, VitalSuite, and EdgeSight).

Consolidated Network, System, Security, Storage, Application, Appliance event monitoring across a global operations support community.

- Integrated NetCool, EMC SMARTS, OpenView OVIS, CiscoWorks, Vitalnet, NETIQ, Tivoli, Acopia, NetApps, SAN Navigator, Call Recording Systems, IDS (ISS), and Firewall (CheckPoint, PIX, Nokia, NetScreen, NeuSecure), and appliance (AGS, Arrowpoint, BlueCoat, Citrix) events into a global event management system.

Integrated internal monitoring with several outsourcing efforts

- Involving AT&T, Verizon, MCI, Dimension Data, and IBM Global.

ITIL certified, PMP certified, Cisco CCNA/CCIE certified, OpenView certified

Focus For Operations Track Presentations

