Service Assurance Industry Trends

Ratan Sanjay, Service Assurance Practice Leader, Asia Pacific, IBM Software Group
Agenda :-

• OSS Drivers
  - Service Assurance challenges
  - Impact on delivering to customer expectations

• Emergence of Service Assurance 2.0
  - NOC/SOC evolution
  - IBM Service Assurance Reference Architecture
Communications Service Provider Business Priorities

Innovation in A Connected and Converged World

- Reduce costs and increase productivity
- Maximize profitability for existing and new customers
- Enhance the quality of each customer experience
- Rapidly deliver new revenue streams through service innovation

What matters is the SERVICE…

…services will span ANY type of network…

…services will connect people in new ways, ANYWHERE…

…requires a QUALITY customer experience.
IBM’s Innovation focus areas

- Supporting IMS-based NGN services

- New technology support such as WiMax, Carrier Ethernet

- Service Assurance support of SDP layer-created services utilising common components such as presence, location, collaboration in a mobile internet & web 2.0 world

- Common modelling across service assurance areas

- Network Operations Centre – Service Operations Centre (NOC – SOC ) Service Assurance management

- New green and other IT data-centre initiatives
Tier-1 Telco Challenges

- **Grow Market Share**
  - Roll out innovative, sticky data services to offset decline in voice revenues
  - Invest in next generation service enabling infrastructures - Adaptable, Scalable, and Tailorable
  - Scale efficiently to improve subscriber base
  - Transition from pure-play telecom players to integrated telecom/IT services firms

- **Improve Profitability (ARPU)**
  - Reduce capital cost per subscriber
  - Reduce operations costs

- **Deliver Superior Customer Experience**
  - Differentiate with innovative service features, content and rate-plans
  - Improve speeds, reliability and quality of the service delivered
  - Unparallel customer-service (via seamless integration between front and back offices)
**Service Assurance Trends – Challenges – Actions**

**Trends**
- Focus on customer and quality
- Launch innovative new services
- Replace legacy OSS/BSS
- Embrace new frameworks such as SDP, IMS and SOA
- Drive convergence of Fixed/ Mobile and Telco/IT/Media

**Challenges**
- Lack of consolidated view at device, network, service and customer layers
- Large numbers of disparate Service Assurance systems
- Difficulty prioritizing based on customer/revenue impact
- Inability to perform intelligent root cause analysis
- Infrastructure complexity inhibits use of new frameworks

**Actions**
- Most comprehensive Service Assurance Portfolio to:
  - Reduce operational costs
  - Accelerate time to market
  - Improve service quality
  - Enhance the customer experience

- Service Quality, SLA and Customer Experience Management
- Fault/Event Management
- Performance Management
- Discovery & OSS Network Mediation
- Applications Management

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Service assurance components and relationships to other telecommunication software systems

Source: OSS Observer
Figure 6: Global service assurance forecast by telecommunication service 2007-2012

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<td>Mobile (CAGR 12%)</td>
<td>$879</td>
<td>$976</td>
<td>$1,103</td>
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<td>$649</td>
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<td>Res BB (CAGR 13%)</td>
<td>$483</td>
<td>$551</td>
<td>$603</td>
<td>$703</td>
<td>$788</td>
<td>$892</td>
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Source: OSS Observer
Emergence of Service Assurance 2.0
Enabling Clients to Deliver Quality Services

Visibility: See your Business

Control: Manage your Business

Automation: Improve your Business
Visibility, Control and Automation

Five Entry Points to Service Management

IBM Service Management: Enabling clients to deliver quality service through Visibility, Control & Automation

<table>
<thead>
<tr>
<th>Discover</th>
<th>• Understand infrastructure and business dependencies</th>
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<tbody>
<tr>
<td>Monitor</td>
<td>• Track infrastructure health and compliance</td>
</tr>
<tr>
<td>Protect</td>
<td>• Ensure infrastructure is secure and resilient against threats and disasters</td>
</tr>
<tr>
<td>Industrialize</td>
<td>• Streamline workflows and processes for repeatable, scalable and consistent results</td>
</tr>
<tr>
<td>Integrate</td>
<td>• Align and integrate operations and business for optimal impact</td>
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Comprehensive Capabilities, Built on Best Practices

IBM Service Management

Best Practices, Methodologies, and Services

Service Management Platform

- Service Delivery & Process Automation
- Service Availability & Performance Management
- Storage Management
- Security, Risk & Compliance
- Datacenter Transformation
- Asset & Financial Management
- Network & Service Assurance

Visibility  Control  Automation

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IP Based Services Driving Fundamental Changes

Change Catalyst:
IP Based Services → Delivered via IP Based Applications → Run on IP Based Platforms

Next Generation
Converged IP Environment

Managing the business based on:
- network availability & performance
- device utilisation and performance
- service quality
- customer experience
- financials (revenue, churn, costs)

Enabling:
- real-time operations prioritisation
- stronger interlock between teams
- improved effectiveness
- true customer retention strategy
- network health automation
Converged Services require Converged Manageability

- Converged services include applications ("Triple Play", VoD, music)
- Business / service alignment (deploy / monitor / manage / SLM)

An integrated, component-based operations environment drives efficiencies and enables management of the customer’s experience
The emergence of Service Assurance 2.0!

Network Operations

Service Operations

Customer Experience
Key focus areas of an evolving Network & Service Operations Focus

360 root-cause analysis

Service Assurance
Workflow automation

Consolidated & Integrated Operations

Customers

Services

Devices

Networks

Revenue <= Prioritization => Scale of Customer impact
Our vision for telecom service provider management

**Internal SLA**
Provision service within four hours

**Finance & Billing**
Set up for billing within two hours

**Customer SLA**
Are we keeping our customers happy?

**Customer SLA**
What is important to our customers?

**Product Management & Marketing**

**Senior Management**

**Network Operations**
3rd party SLA
- Soccer clips
- MTV ringtones
- Movie trailers

**Enterprise Account Team**

**Gold Customer SLA**
- Accessibility
- Throughput
- Latency
- Customer Care

**Customer Care**

**Internal SLA**
- UMTS, DSL, IPTV
- Core Network
- Attach Rate
- Links

**Response**
- Hold time
- Resolution

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Our vision for telecom service provider management

Managing the business based on
- network
- device
- service
- customer experience
- financial (revenue, churn)

Enabling
- real-time operations prioritisation
- stronger interlock between teams
- improved effectiveness
- true customer retention strategy
- network health automation
Service and Quality are Key

How do I deliver in a profitable consistent manner an increasing volume of complex services with an appropriate quality of service that maximises the customer experience?

How do I drive my operations hour-to-hour around maximising customer experience and reducing revenue loss & churn due to poor quality?

How do I reduce the service assurance readiness cycle for a new service from months to weeks?
The NOC/SOC Evolution

Key Drivers

- Converged Services
- Customer Experience
- Next Gen Networks
- OPEX Reduction

Responsible for:
Customer, Partner and Service Management

Objectives:
Ensures a superior level of Customer/Partner Service Quality and Experience; 1) Manages performance & outages against SLAs 2) Manages customer & partner problems 3) Provides customized reports and direct customer & partner access to assurance information i.e. Fault & Performance

Business Outcomes

- Reduced Churn & Customer
- Reduced Revenue Loss from Outages
- OPEX & CAPEX Reduction through Network Convergence
- NOC OPEX Reduction through 1) Facility Consolidation 2) Efficiencies gained through organization restructure and process automation

Evolution

Service View

Customer & Partner Views

NEW PARTNERS

CUSTOMER EXPERIENCE

BUSINESS UNIT

PRODUCT MGMT

Key Drivers Business Outcomes

Traditional Network Operations (NOC)

"Viewed as a Cost Centre"

E2E N/W View

N/W Domain View

Responsible for:
Network & Service Surveillance & Monitoring

Objectives:
Ensures the Network and Service Infrastructure is available and Efficiently managed to enable the delivery of a service

New Services

Revenue Increase

NOC OPEX Reduction

Reduced Revenue Loss from Outages

OPEX & CAPEX Reduction through Network Convergence

NOC OPEX Reduction through 1) Facility Consolidation 2) Efficiencies gained through organization restructure and process automation

CONVERGED SERVICES

CUSTOMER EXPERIENCE

NEXT GEN NETWORKS

OPEX REDUCTION
Telco Workshop

Tivoli Netcool Key Directions

Deliver on leading Service Quality Management

Enable the convergence of the NOC and IT

Further integrate the Service Assurance portfolio
IBM Network and Service Assurance

Network / IT Operational and business events integrated in one console. Launch to operational console for quick root cause analysis.

Real-time data access, from virtually any data source across organizational boundaries

Consolidated operational view of performance & availability

Complete coverage of over 1000 device types

Policy driven automated response to events (failover, provision new capacity, problem resolution).

Business Service Management

Consolidated Operations Management

Domain Specific Management

Dependency Collection

Event & Performance Collection

Note: All layers are inclusive of distributed and mainframe.
IBM Network and Service Assurance

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Real-time data access, from virtually any data source across organizational boundaries

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TSQMC
(TBSM TNSQM CEM)

Impact

Omnibus
TNPM-W
Proviso

ITCAM ITM NEVoIP CVoIP

TADDM ITNM Omnibus Probes App Packs Tech Packs

Note: All layers are inclusive of distributed and mainframe.
Tivoli Integrated Portfolio

*Tivoli Integrated Portal, Common Data Warehouse and Consistent Product Experience*

- More Effective Business Impact and RCA Analysis
  - Launch in Context for Drill Up (Business Impact) or Down (RCA)
  - Navigate between Products seamlessly
  - Single Console for multiple products

- Consistent cross-product experience reduces OPEX
  - Reduced Operator Training
  - Decreased administration overhead
  - Single sign-on
  - Self Management

- Resource Reconciliation & Status Mapping
  - Correlated resource schema across products
  - Correlated fault and performance data for a richer view of Service & Resource health
  - Flexible reporting tool allows for the creation of cross-product reports

- Integrated Operations

- Data Integration

- Navigation
eTOM Service Management Architectures

...this combined with Maximo and Netcool products from IBM and our partnerships extends value across the eTOM framework

<table>
<thead>
<tr>
<th>CUSTOMER</th>
<th>Assayrance</th>
<th>Billing</th>
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<tr>
<td>Fulfillment</td>
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<td>Customer Relationship Management</td>
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<th>Netcool Inter-OSS Integration</th>
<th>Tivoli Service Request Mgr</th>
<th>TN SQM</th>
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<tr>
<td>Cramer</td>
<td>NetCracker</td>
<td>*SLA Mgmt</td>
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<td>Granite</td>
<td>*Service Perf Mgmt</td>
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<td>Maximo</td>
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<td>*Customer Exp Mgmt</td>
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<td>Intelliden / Syndesis / Axiom</td>
<td>TN SQM</td>
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<th>Tivoli Network Manager / Virtuo Mediation</th>
<th>Amdocs</th>
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IBM Offers Widest Service Management Solutions

Service Dashboards

- Service Impact
  - Monitors Service Quality Commitment
  - Track Service Quality Violations
- Service Level Management
  - Monitors Service Quality Commitment
  - Track Service Quality Violations
- Service Modeling
  - Defines Dependencies between service components
  - Define mapping with resources
  - Discovers dependencies dynamically

Customer Service Portal

- Real-time Dashboards
- Service Navigation

Service Dashboards

- Service Impact
- Service Level Management
- Service Modeling

Problem Management
- Incident Management
- Trouble Ticket
- Root Cause

Change Management

Service Desk

Service Dashboards

- Service Impact
- Service Level Management
- Service Modeling

Discovery

Fault Management

Performance Management

Security Management

Signalling Analysis

Transaction Analysis

Infrastructure Data Probes

Session Data Probes

Inventory
- Physical
- Logical

Billing
- Usage
- Promos/Credits
- Rebates

Fulfillment
- Ordering
- Provisioning
- Activation

Discovery

Fault Management

Performance Management

Security Management

Signalling Analysis

Transaction Analysis

Inventory
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Billing
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Fulfillment
- Ordering
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- Activation

IBM Offers Widest Service Management Solutions
Global Presence
Tivoli Netcool - Managing World’s Leading Service Provider Networks

**AMERICAS**
- 1,000+ Service Provider Customers

**EMEA**
- SFR
- Orange
- France Telecom
- KPN
- T-Mobile
- Telecom Italia
- Swisscom
- Telenor
- TeliaSonera
- Telkom South Africa
- Virgin Media
- Vodafone

**ASIA PAC**
- China Netcom
- China Telecom
- Hong Kong CSL
- KDDI
- NTT

We were able to deploy Tivoli Netcool software quickly and immediately consolidate information from many devices and elements. This enabled us to realize a return on investment in just weeks.”

— Dilshan Perera, Principal Systems Architect, TelstraClear Limited

“Tivoli Netcool has enabled Swisscom Mobile to triple its business without increasing headcount.”

— Mr. Rene Luyten, Project Manager, Swisscom Mobile

“Tivoli Netcool software has made an immediate and positive impact on SmarTone-Vodafone’s GPRS network. The solution not only integrated easily with our systems and improved the level of service we provide, but has also provided the technological platform to assist us in continuing to succeed in Hong Kong’s telecommunications market.”

— Mr. KK Luk, Assistant General Manager, Engineering and Operations, SmarTone-Vodafone

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As our business grows, we must deal with increasing complexity while delivering high-quality IT services to our business users. The combined Netcool and Tivoli suite will help us meet the challenge.

— Mr. Yuan Jun De, Deputy General Manager, Bank of China Information Center

We rely on Netcool to help us assure the services, end-to-end, that we deliver to our customers. We look forward to continued innovation from IBM as we tackle next generation service assurance challenges.

— Peter Hascher, Head of Development at BT

We are excited about the opportunity for increased synergy between the Tivoli and Netcool suites. The combined IBM solution is an important foundation for our IT & network service assurance management roadmap.

— Yves Vlamijnck, Team Mgr, Network and IT Monitoring, Belgacom
IBM is the Global Leader in Service Assurance

#1 Service Assurance
#1 Event Management
#1 Performance Management

“UNDISPUTED LEADER in IP fault and event management,” per OSS Observer

#1 OSS VENDOR &
#1 in SERVICE MANAGEMENT
Heavy Reading’s annual survey of leading SPs worldwide

LEADER in Event Correlation & Analysis
LEADER in Performance Monitoring and Management
Service Assurance from IBM

Comprehensive portfolio
- # 1 in Service Assurance with FM, PM, SQM, CEM, SLA offerings

Integrated solutions
- Within Service Assurance portfolio, across Tivoli IT assets, with partners in OSS

Proven in the market
- Over 1000 SP customers and growing

Open and standards-based
- Integrate with other 3rd party software and comply with TMF standards

Technology coverage
- Multi-technology/vendor spanning wireless, wireline & IP

Industry expertise and partnerships
- Deep network knowledge; alliances with major NEPs
World-Class Partnerships and Alliances

PLUS…

✓ Over 100 expert channel partners take Tivoli Netcool to market worldwide
✓ A robust technology alliance program that increases Tivoli’s reach
<table>
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<th>Why IBM?</th>
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<td><strong>Unified Solution</strong></td>
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<td><strong>Industry Expertise</strong></td>
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<td><strong>Ease of Navigation and Use</strong></td>
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<td><strong>Scalability</strong></td>
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<td><strong>Breadth of Offering</strong></td>
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<td><strong>End to End Solutions</strong></td>
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<td><strong>Partnership</strong></td>
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For More Information

**Tivoli User Community**
An active and lively community for Clients, Business Partners, and IT professionals. **Free membership** provides you with valuable resources, tools and networking capability. Log on to [www.tivoli-ug.org](http://www.tivoli-ug.org) or visit the ped in the IBM Pulse Expo.

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IBM offers technical training and education services to help you acquire, maintain and optimize your IT skills. For a complete Tivoli Course Catalog and Certification Exams visit [www.ibm.com/software/tivoli/education](http://www.ibm.com/software/tivoli/education).

**Tivoli Services**
With IBM Software Services for Tivoli, you get the most knowledgeable experts on Tivoli technology to accelerate your implementation. For a complete list of Services Offerings visit [www.ibm.com/software/tivoli/services](http://www.ibm.com/software/tivoli/services).

**Tivoli Support**
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