Product Strategy Overview
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April 2016

This document contains forward-looking statements based on current expectations, forecasts and assumptions of the Company that involve risks and uncertainties. Forward-looking statements are subject to risks and uncertainties associated with the Company's business that could cause actual results to vary materially from those stated or implied by such forward-looking statements.
Meeting the Challenge

Manage Customer Experience
- Churn due to Network/Service Quality
- VIP/Corporate SLA monitoring
- Real-time insights on customers
- Personalization of services
- Experience journey

Evolve to Network Virtualization
- Mapping QOS across physical and virtualized networks
- Prescriptive analytics and automation

Deliver Digital/IoT services
- Predicting and managing digital/IoT traffic, and QoS
- Tracking of devices and OTT/Video

Operate Next Generation Service & Network Operation Centres
- Convergence of NOC and SOC
- Real-time insights on service usage
- Poor forecast of service needs
- Employee productivity
- Cost of Operation

Common network challenges
- Low collaboration between technical, marketing and care
- High costs of OSS/BSS integration
- Real-time insights & operations automation
- Data volumes
Experience Assurance and Analytics Blueprint

**Pre-integrated, Collaborative Platform for the Scale and Speed of Digital Services Providers**

- **Capex efficiency** through pre-integrated network, service, customer assurance and big data analytics
- **Agile service launch** using orchestration across hybrid NFV networks
- **Multi-team efficiency** from collaborative platform for technical, marketing and care teams
- **Customer insights** and **network monetization** with predictive analytics
- **Increased employee productivity** by close-loop automation
- **Cloud-based**, scalable, secure, network-independent platform
- **New technology-ready** (NFV, VoLTE, IoT)
Platform for unified datacenter

- Federated architecture on commodity HW
- Multi-tenancy
- Multi-Opco, Multi-Country
- Multi-domain, multi-technology, multi-vendor
- Virtualized infrastructure

- In the roadmap – full cloud enabled EAA
  - Full Cloud readiness (private and public)
  - Micro-service stateless components
  - Hot / rolling upgradeable
  - Offering all Assurance, Orchestration and Analytics capabilities as a service
Example Use Case enabled by EAA

- **PM**
- **SQM**
- **FM**

**Automation**
- Where do I have excess capacity in my network? (free spot map)

**Analytics**
- How long is it expected to last?
- What is the profile (preferences, devices, etc.) of my customers in this area

**Network Monetization**
- Monitor QoS, QoE, traffic, capacity. Tune & adjust
- Push desired content to the customers at a promotional rate
- Where do I have excess capacity in my network? (free spot map)
EAA System Capabilities

*Next Gen OSS to support the speed and scale of a Digital Service Provider*

- Real time focus on Converged Digital Experience
- Customer and business context awareness
- Service agility through NFV/SDN
- Cloud based architecture
- Increased operational speed and real time abilities
- Capex consolidation and efficiency
- Management of massive IoT traffic

**Big Data Architecture**
- Web architecture with open REST APIs
- Big Data & elastic storage (PetaByte scalability)
- Multi-tenancy and cloud delivery model
- Real time processing/propagation capabilities
- Service graph modeling

**NG OSS Processes**
- End-to-end with Cross Domain Correlation
- Fusion of PM/FM/SQM/CEM
- RT linkage of customer/service/network MTTx
- Automation, self healing, self orchestration
- Proactive/ Predictive/ Prescriptive processes

**Speed & Scale**
- Distributed elastic search and real time access
- Extend to non-Telecom IoT domain

**NFV/SDN ready**
- Manage hybrid networks in the cloud
- Support NFV, VNF, MANO/orchestration
- QoS driven NFV orchestration
NetExpert
Identifies the root cause for network alarms or service outages and manages faults across network domains and vendor technologies.

ProOptima
Provides integrated performance management, reporting and analytics for converged networks and services.

ProActor
Real time policy engine using sophisticated service models and algorithms to orchestrate complex planning, operations and Assurance processes.

ProInsight
Utilizes data from network, service, customer, and device level to evolve network planning and NOC/SOC operations from reactive into Predictive and Prescriptive mode.

PrAssure
Advanced modeling, monitoring, analysis and optimization of OTT/Mobile/Fixed digital Services Quality for consumer and enterprise.
Path towards EAA

1. Digital SQM with Automation
2. Orchestration and Automation in hybrid NFV networks
3. Big Data Analytics driven automation
4. Integrating PM with Analytics & Automation
5. FM based SQM to drive Proactive NOC/SOC
6. FM and PM integration on Next Gen platform
7. Topology and Inventory Integration
1. Re-inventing SQM with ProAssure Digital SQM

**Digital Service Quality Management, Orchestration and Automation**

- **Dynamically** updates service topology for accurate and rapid service management (24*7)
- **Single SQM system** that assures quality of BOTH virtualized and physical network services
- In-built complex **service orchestration algorithms (not just service degradation alarms!)** - Supports complex SLAs
- **Coupled with Closed-Loop Automation** for network/service configuration in real time
- Dynamic integration with physical network/service inventory or MANO sources of inventory and fulfilment data

**Architected for Digital Service Management:**
- **Subscription based open APIs (TMF 628)** that reduces integration costs
- **Big Data & elastic storage** (Peta Byte scalability)
- Multi-tenancy and cloud delivery model
- Real time processing/propagation capabilities
- Service graph modelling
1. Digital SQM (ProAssure) at DTAG

Incumbent Operator in Germany – OSS and Network Technology Leader
33 M fixed line and 38 M mobile subscribers

Challenge

- New all-IP next generation fixed broadband network needed service monitoring
- Assuring Grade-of-Service to corporate enterprise customers
- Prioritizing incident management support for business-IP customers
- Legacy and disjointed SQM tools failed to scale
- Service integration to CMDB and FM/PM systems

Solution

- Umbrella digital SQM system that manages millions of customer endpoints and service models
- Fully automated inventory integration that keeps the service model instances and customer connectivity chain updated
- Rest-API integration points for DTAG’s NGSMM and Common Assurance architecture

Result

Managing Corporate IP customers
- 24/7 surveillance support for SOC
- Proactively checks endangered SLAs
- Prioritize actions for corporate customers on Ethernet Virtual Private Line services

Launching New Services Faster
- Design new services so that NSO can supervise them
- Flexible design rules and templates for rapid service launches

OPEN, COLLABORATIVE TMF INTERFACES
- Collects performance/time-series data: TMF 628
- Alarm data collection: TMF 524*
- Publishes northbound KPI/KQIS/reports: TMF 628
- Determines impact of network faults and performance degradation on services: TMF 522*
- Northbound publication of service problems: TMF 522 or x.733*
2. Service Orchestration and Automation for Hybrid NFV Networks

Automatically Drive the Orchestration Process in Real-time to Achieve end-to-end Digital Experience/SLA/QoS Objectives

- Manages performance and quality of virtualized and physical network functions, network services and NFV infrastructure planning
- Automatically integrates and enables new VNFs for network service topology and configuration updates in (near) real time
- Open APIs allow third parties (SLA systems, Customer Care etc) to evaluate and use on-demand data, KPIs and SLAs
- Provides assurance/orchestration customized to CSP NFV eco-system
- Supports complex SLA reporting and dashboarding

End to end Service Quality Management, Orchestration and Automation

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2. Service Orchestration and Automation for Hybrid NFV Networks

- **Customer/E2E QoS aware**
  - Policy-driven approach for QoS management complements 3rd party MANO and EMS capabilities
  - Drive NFV orchestration process in real-time to achieve SLA/QoS objectives
  - Support complex SLA/QoS value-chains with advanced analytics and reporting

- **NFV aware for hybrid environments**
  - Automatic discovery and configuration of NFV topology
  - End-to-end mapping/visibility across logical and physical domains

- **Multi-vendor/domain/technology**
  - Consolidated view across legacy and virtualized networks and services
  - Proven management of multi-vendor and multi-domain ecosystems

**User:** NOC/SOC Manager
3. Analytics-Driven Automation

Pre-integrated, collaborative architecture for scale and speed

- **Capex efficiency** through pre-integrated network, service, customer analytics
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4. Integrating PM, Analytics and Automation

Value Based Capacity planning

- **Capex efficiency** through pre-integrated network, service, customer performance and analytics
- **Forecasting** and prioritizing capacity upgrades based on customer usage, ARPU, location etc
- **Congestion-relief** optimization with rollout automation
- **Network monetization** potential (Identifying free capacity spots in the network) using combined PM, Analytics and Automation
- **Increased employee productivity** by closed-loop automation
4. Mega Networks Merger and Consolidation

Telefonica: Largest German Operator after E-Plus merger

5.4 M Fixed Broadband and 42.6 M mobile subscribers

Consolidation Challenge

- New unified PM to scale up to 400K+ cells from combined Tier-1 networks
- Complex multi-vendor situation (RAN, Core, IP, VAS, Transmission)
- Fast deployment timelines
- High compliancy requirements
- Integration with all legacy OSS ecosystem from 2 large networks

Single Solution

- Unified Federated architecture for PM for high scalability and data processing
- Migration from SAN to DFS storage
- Fully closed-loop automation for agile operations of complex, merged network
- Network analytics to transform OSS into an intelligent capacity and CAPEX planning engine
- 50*12 PM KPIs and 6 Use-cases

Top Use Cases

- Forecasting and prioritizing capacity upgrades based on customer usage, ARPU, location etc
- Congestion-relief optimization with rollout automation
- Network monetization potential (Identifying free capacity spots in the network) using combined PM, Analytics and Automation

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5. Delivering Proactive NOC/SOC

Globe Telecom, one of the largest CSPs in the Philippines, selected MYCOM OSI for its OSS transformation. Globe Telecom has implemented **proactive and service-oriented NOC solutions** utilizing MYCOM OSI’s ProOptima™ network performance management and new ProActor™ automation products.
5G NFV Core Monitoring at the 5GIC

• MYCOM OSI monitors 5GIC Virtualized Core (vEPC) Performance and Service Assurance

• 5GIC research areas include:
  – Content and User/Network Context awareness
  – New Air – interface (wave form, etc.)
  – Light MAC and RRM
  – Multi-Cell joint processing (massive MIMO)
  – Antennas and Propagation
  – System Architecture and Coexistence

• Other focus areas
  – User Experience
  – Management of 5G Networks (RT, Automation
  – IoT connectivity and analytics

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Leverage EAA for IoT Service Management

Leverage our platform to create value proposition for IoT

- Engage CSP IoT managed services
  - To value added Service Providers – ESCOs, Facility managers, Smart City operator, etc.

Example of ESCO value proposition
Thank you