Aspects Of Network Performance Orchestration

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Who we are

InfoVista provides cost-effective network performance orchestration solutions that help our customers provide top-quality user experience while increasing the capital efficiency of their networks.

Best in class solutions for all networks

6 times Gartner Visionary

Enterprises

automatically guarantee business-critical application performance over the secured hybrid-infrastructure, while reducing telecom costs.

#1 in Business Services

Communications Service Providers

maximize the monetization of high-value IT services to business customers at the lowest possible costs.

Over 20 years of leadership

Mobile Operators

reduce costs, boost quality, and prepare for a 5G future with solutions for the entire network and service life-cycle, across the transport, mobile core, and radio network.

Agenda

- Today’s requirements for network performance orchestration
- InfoVista TEMS Approach
- Ways to ensuring a cost efficiency
- Take away

Today's Requirements For Network Performance Orchestration

The Evolving Story of Networks

Advancing Generations

- 2G, 3G, 4G, 5G and beyond
- Several implicit features (IRAT, CSFB, CA, etc)

Changing End User Use Cases

- Voice, Data, Browsing, Streaming, New TV, OTTs

Large Network Footprint

- Main cities, small cities and remote areas
- Indoor coverage
- Roaming Support

Big Data Analytics

- Large volume of collected logs/information
- What does it all mean?

Competition

- Benchmarking results to guarantee acceptable performance

Device Performance

- Different device models behave differently and can impact the end user perception

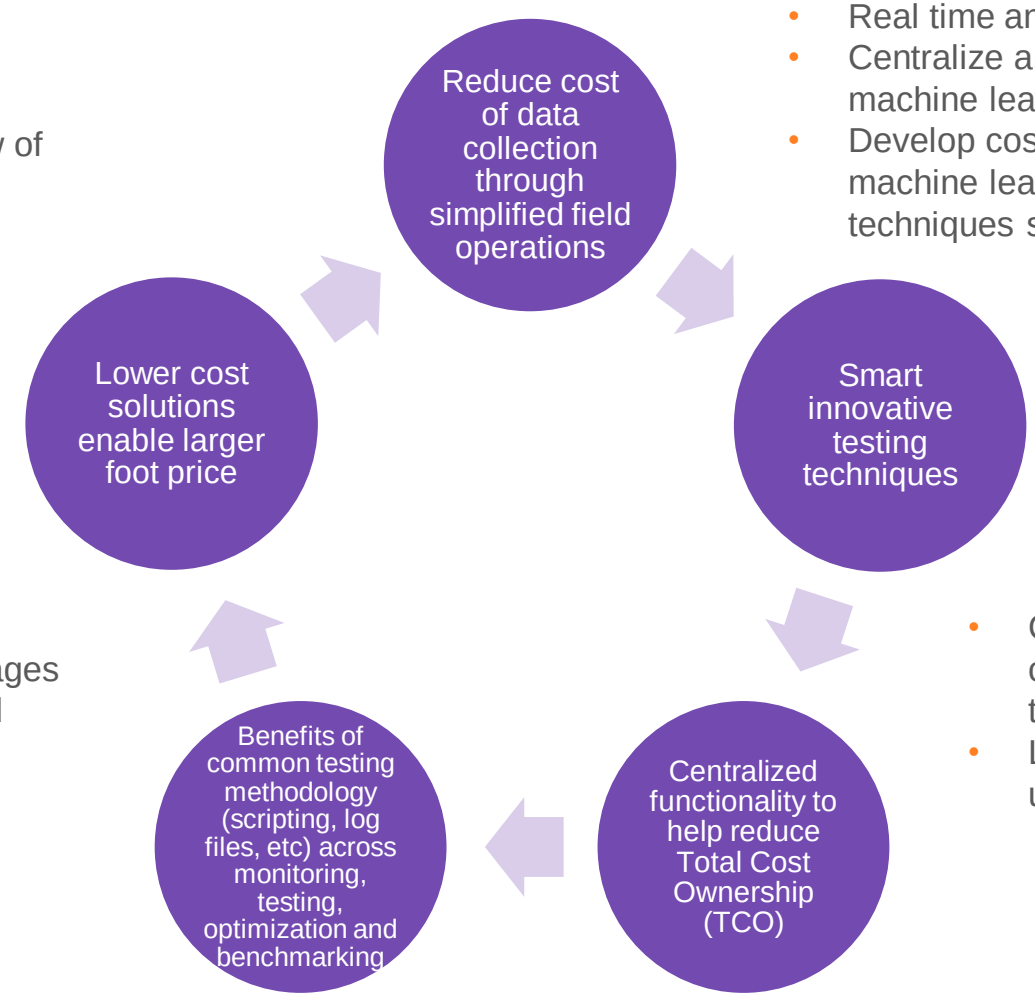
Orchestrating the Network Performance – What is Needed?

- Cost Effective Network Design and Rollout
- Network Management
- Feature Integration and Optimization
- Testing, Monitoring, Benchmarking and Scoring
- Subscriber Analytics
- GeoAnalysis

Today's Requirements for Network Performance Orchestration

- Big data support
- Remote access for real-time view of network and test environment
- Cloud based testing solutions

- Big data support
- Real time analytics and root cause analysis
- Centralize and embed Subject Matter Experts into machine learning / artificial intelligence algorithms
- Develop cost efficient benchmarking solutions, new machine learning based QoS/QoE evaluation / monitoring techniques suited for OTT services on the path to 5G



- Comment KPIs
- Same script leveraged across stages
- Reduce post processing cost and conflicting information

- Common Management platform of data collection for all stages (monitoring, testing, benchmarking, etc)
- License management and sharing across users

InfoVista TEMS Approach

The Benefits of TEMS Ecosystem

- Ability to test multiple operators at the same time
- How to rank them, more on the upcoming slides

- Top down approach to visualizing the network health
- Allows for more detailed log analysis

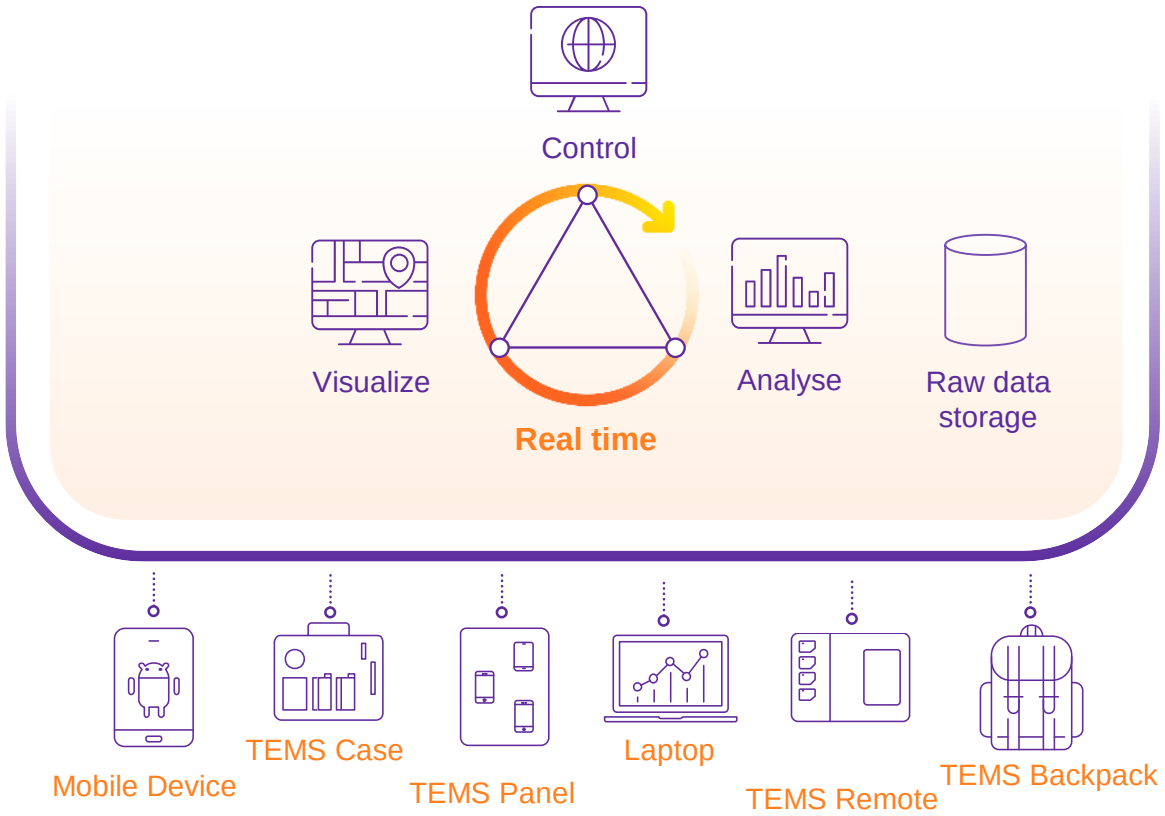
- TEMS sources out latest devices in the market that supports latest technologies from leading OEM and Chipset Vendors.
- Upgrade is easily done

- New use cases are added to the system
- Fleet manager can push new test cases to the testing solutions

- Managing a large fleet from one console, the Fleet Manager
- Ability to deploy small or large testing solutions in any location

TEMS Approach to Performance Orchestration

Aligned with draft recommendation E.FINAD “Framework for Intelligent Network Analytics and Diagnostics”, TD 307 (TEMS contributors)



Data Collection

- Operations (FM, resources, licensing etc.)
- Storage of raw data,
- Real-time dashboards,
- Real-time analytics
- Monitoring statistics reports/views
- Alarms
- RCA on Real-time data

TEMS Discovery

Insightful Post Processing & Analysis of TEMS & 3rd party results

TEMS Post Processing Product

- Powerful off-line analytics
- Multi data format
- Desktop and Enterprise versions

InfoVista

Benchmarking Needs & TEMS Solution

System administration
- User configuration
- System configuration

Remote configuration
- System and Software configuration
- TAG information- Company/ Team/ Project/ etc
- Workorder configuration, incl DoD/ DoF)
- SIM configuration
- Trigger conditions (Time/ Area/ Route/ Position)
- Pre-validation of Work orders*

Project administration
- Project configuration
- Resource scheduling

KPI reports

Trigger handling
- Manual scheduling
- Synchronization M2M
- Device detection

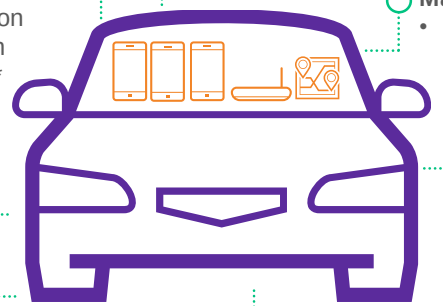
Alerts (DoF)

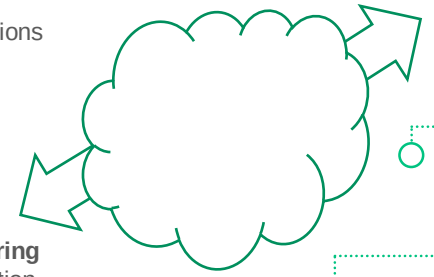
Architecture
- Web
- Workflow
- User Profiles (Use-cases)
- Cloud

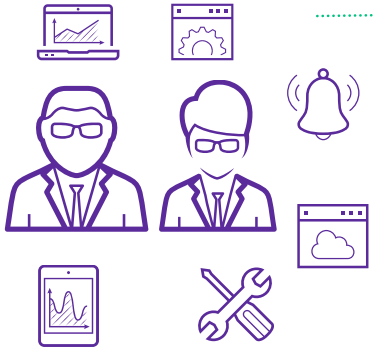
Reporting- profiles
- KPI reports
- RCA reports
- Completion report
- etc

Data Upload (OTA)
- Service information
- Event information
- CDF information*
- Log file *.trp
- Part of payload

Map with way-points
- Turn-By-Turn instructions







Alarm handing profiles
- Operational alarms-Event
- KPI threshold- CDF

Remote access-*
- Trouble shooting
- Add-hoc testing

Real Time monitoring profiles
- Map positioning- CDF

Real Time monitoring
- Service information
- Event information
- CDF information
- Progress information (DoD)

Common Data repository- history aspect
- Workspaces
- Workorders (DoD/ DoF)
- Logfiles *.trp
- Reports
- Settings/ configurations
- Templates
- Profiles
- NO-SQL

Real Time monitoring profiles
- Performance counter monitor (KPIs/ Radio)
- Service monitor CDF
- Event monitor CDF
- Project monitoring- DoD/ DoF
- Post-validation of results

Hard case (x4NUCs)
- Inbuilt Router with WiFi/ hot-spot
- Power control logic
- Local display- sys. administration
- Ext. GPS, shared

Device mounting kit (up to 24 UEs)
- Inbuilt USB HUB
- Inbuilt charging

Ways of Ensuring Cost Efficiency

TEMS Testing Approach – Smart Testing

Aligned with draft recommendation E.FINAD “Framework for Intelligent Network Analytics and Diagnostics”, TD 307 (TEMS contributors)

SERVICE BASED CEX PERFORMANCE STATISTICS & ANALYSIS

NETWORK UTILIZATION AND PERFORMANCE EVALUATION & BENCHMARKING

NETWORK DETAILS – ROOT CAUSE PER SERVICE AND TECHNOLOGY

DEVICE/ CLIENT PERFORMANCE

Statistical scoring and ranking

Aligned with draft recommendation E.NetPerfRank “Statistical Framework for QoE Centric
(TEMS authors)

Define

Define set of KPIs/QoS contributing to QoE (per service)

Calculate

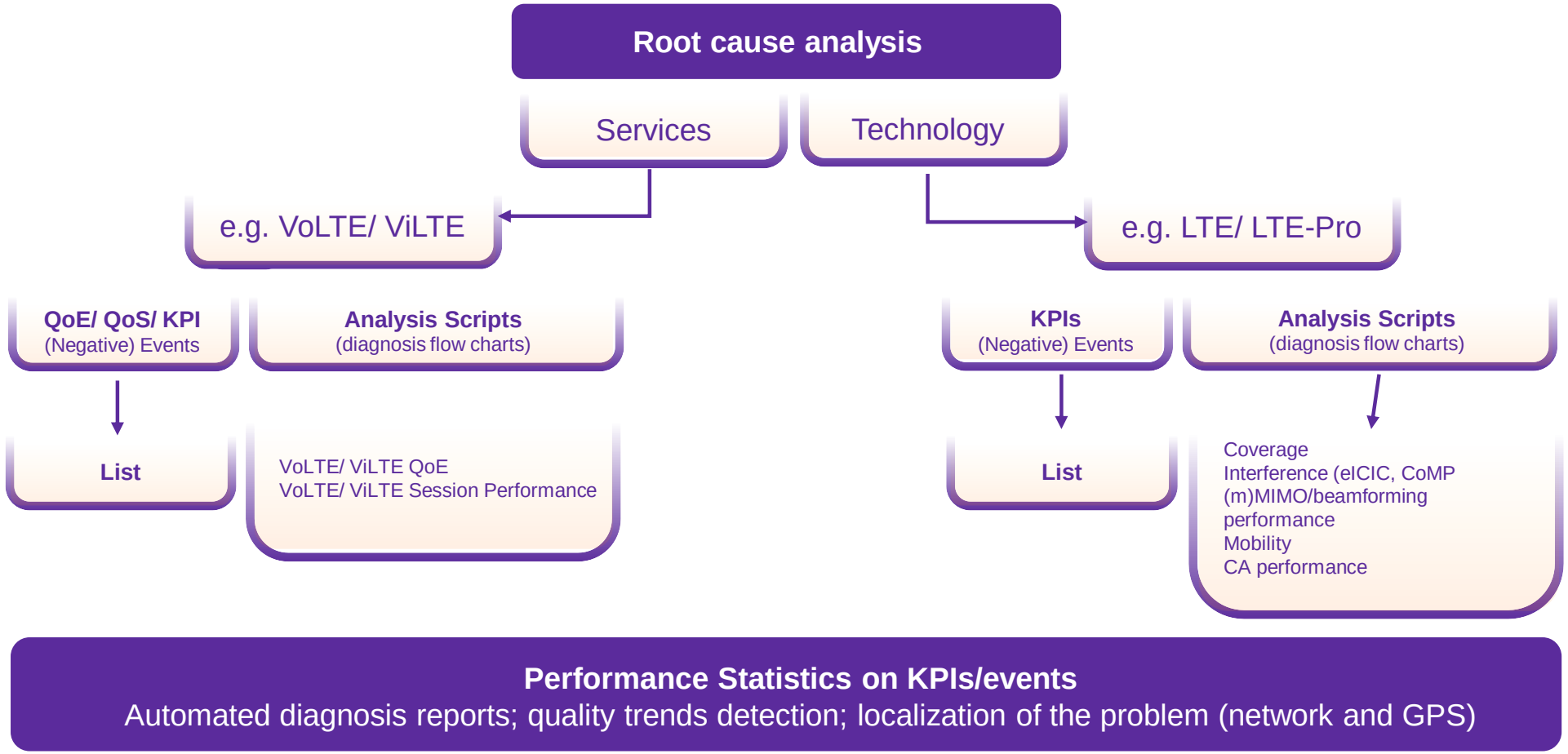
Calculate KPIs statistics (e.g. avg, std, N) for each operator

Calculate

Calculate for each KPI the statistical difference against best preforming KPI between all operators

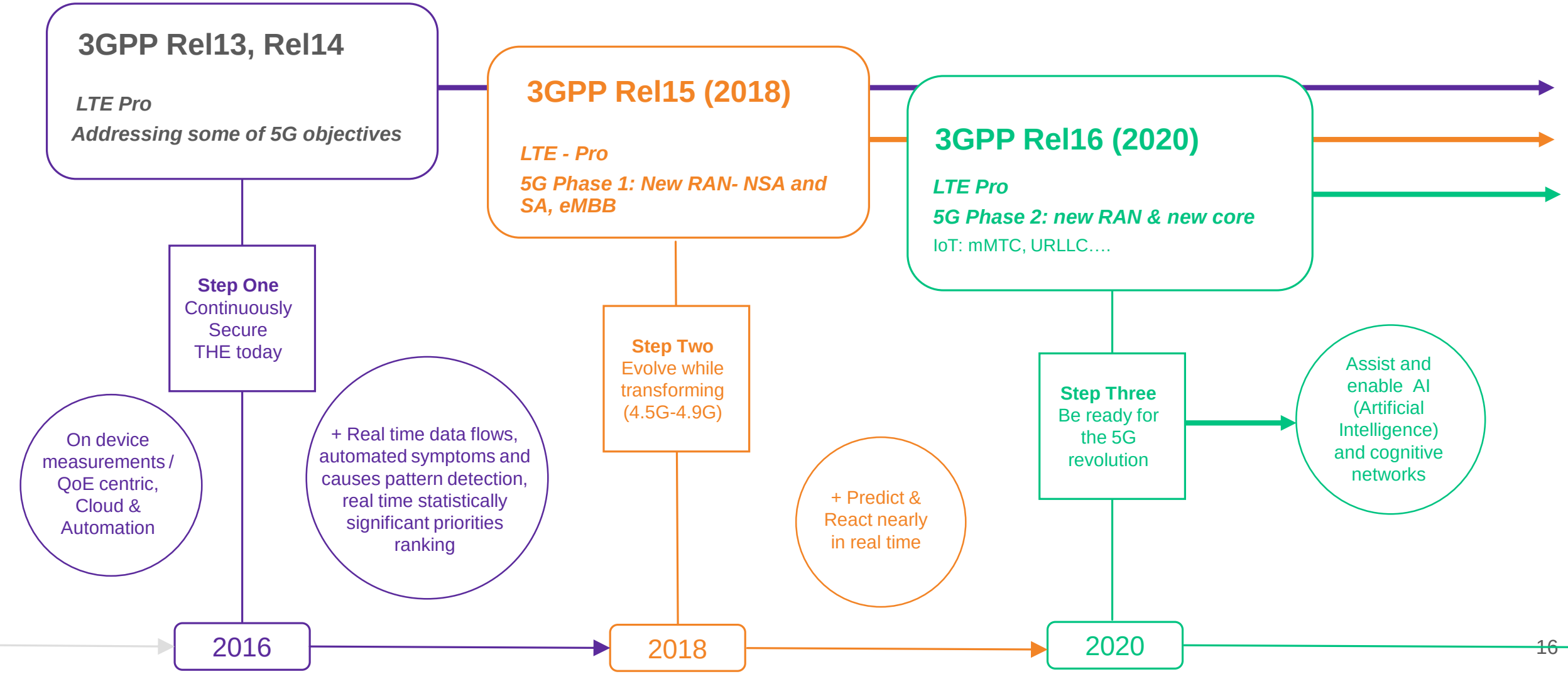
TEMS approach for service and technology centric root cause analysis

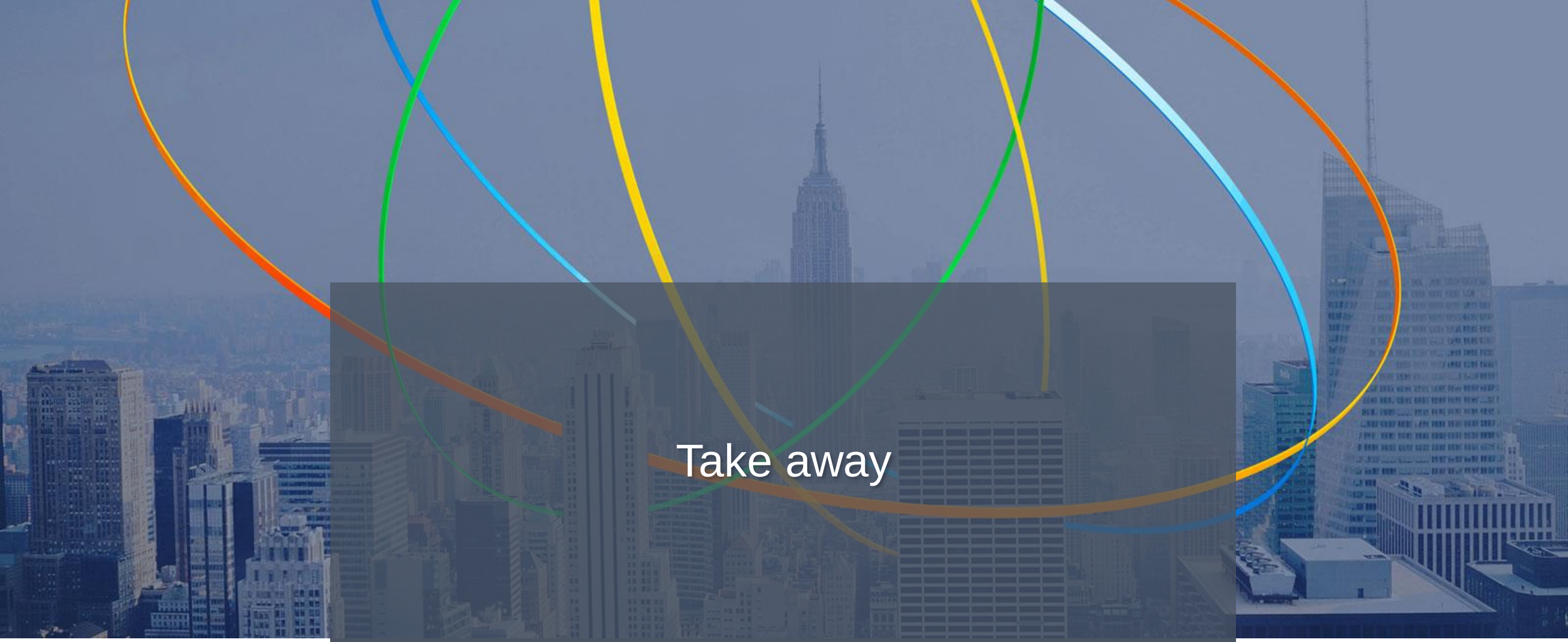
Aligned with draft recommendation E.FINAD “Framework for Intelligent Network Analytics and Diagnostics”, TD 307 (TEMS contributors)



Testing strategy aligned with technology evolution

Virtualization, distributed cloudification, slicing, edge computing

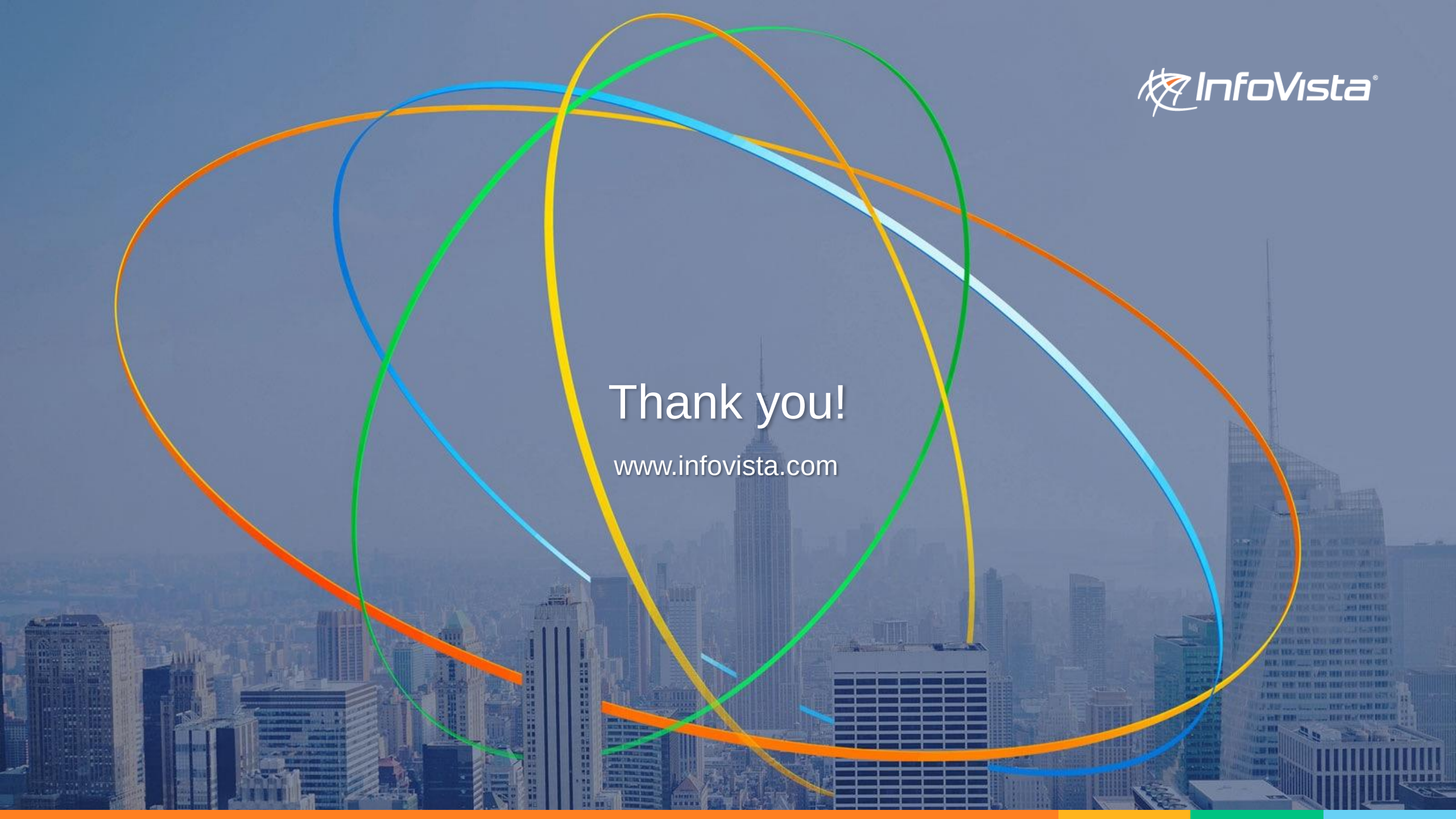




Take away

Take away

- Today’s orchestration of the network performance is an ongoing effort with a lot changing variables which impose a new requirements on testing
- TEMS evolves along with the technology, adding automated processes and root cause analysis based on a top-down approach, statistical significant benchmarking as well as artificial intelligence and machine learning to our portfolio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