



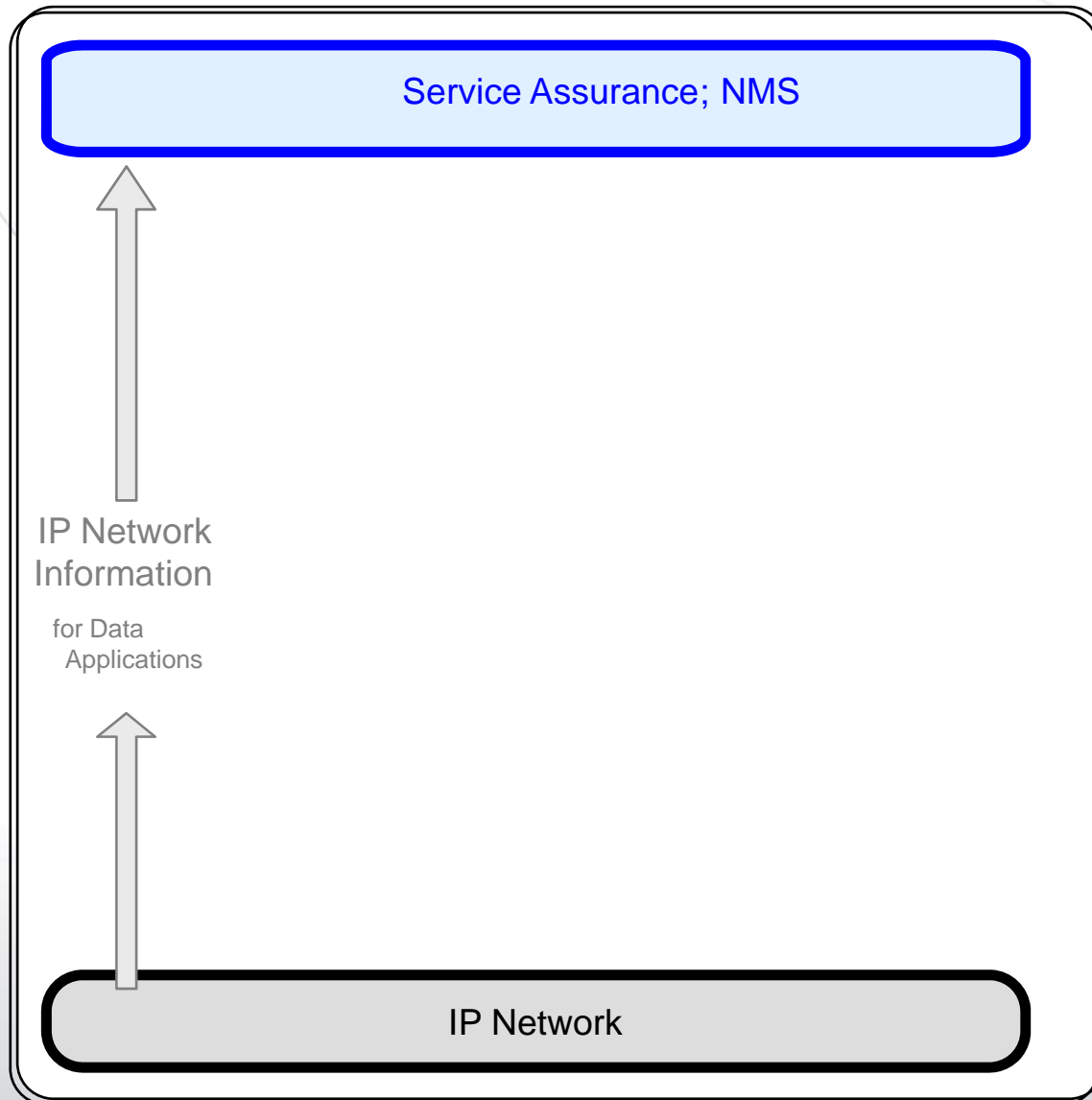
Troubleshooting converged enterprise networks

Dr Mike Hollier, CTO, Psytechnics

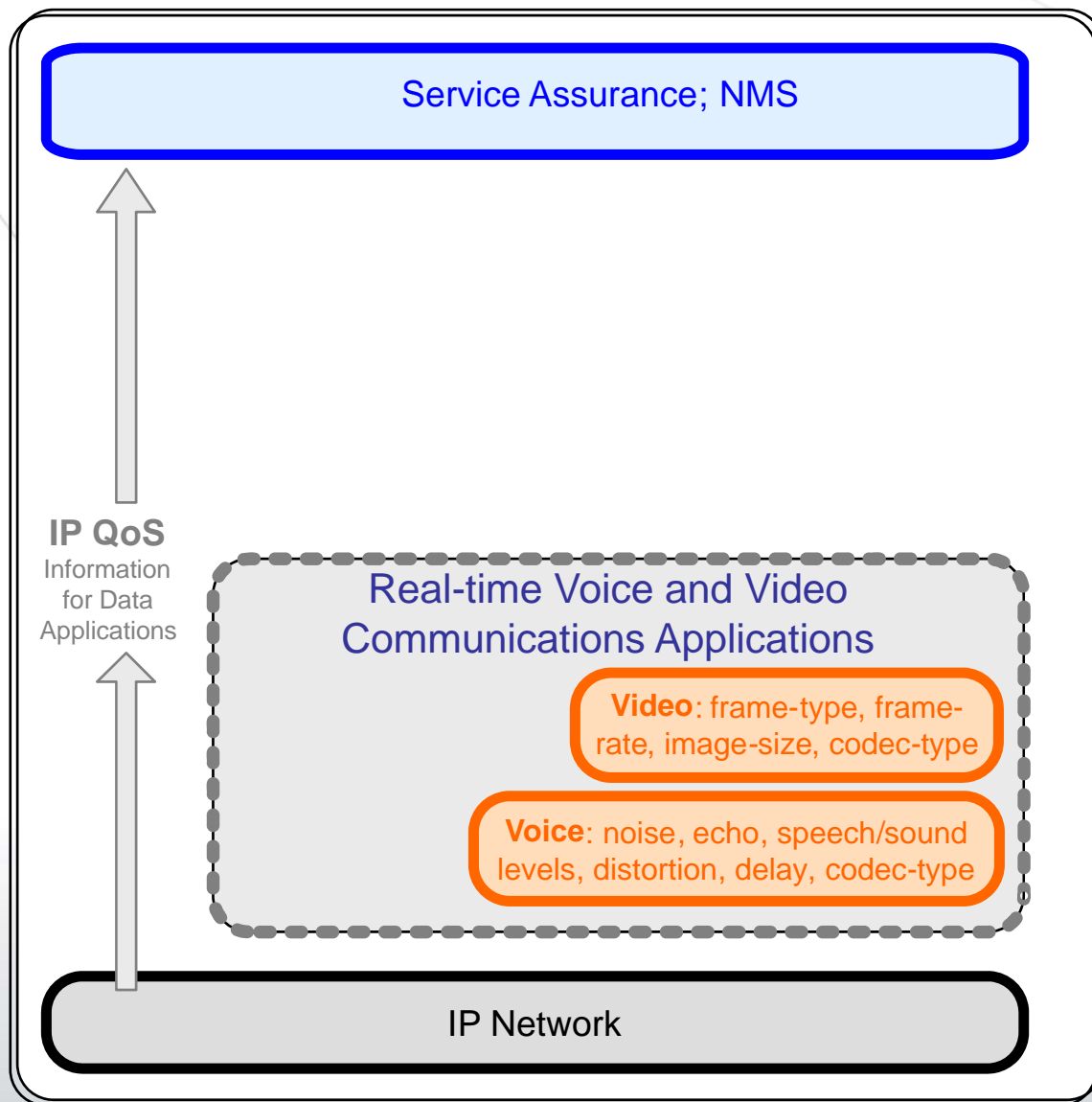
Complexities of Voice Management

- VoIP deployments are proving complex to manage
 - Multiple integrated components and technologies
 - Multiple commercial demarcation points and relationships
- Voice quality is one of the biggest issues hindering mass scale adoption of VoIP
- Today's approaches to performance management are inadequate
 - Trouble shooting is ad-hoc and un-structured today
 - Lack of issue visibility is inefficient and costly
- Demand for an integrated solution to address the 'find and fix' process for voice quality issues
 - Accelerated Troubleshooting and Reduced MTTR
 - Spot Live Voice Performance Issues Before Your Users do
 - Fit-for-Purpose Operational Tools for Operational Teams
 - Establish Rapid Ownership/Responsibility/Demarcation

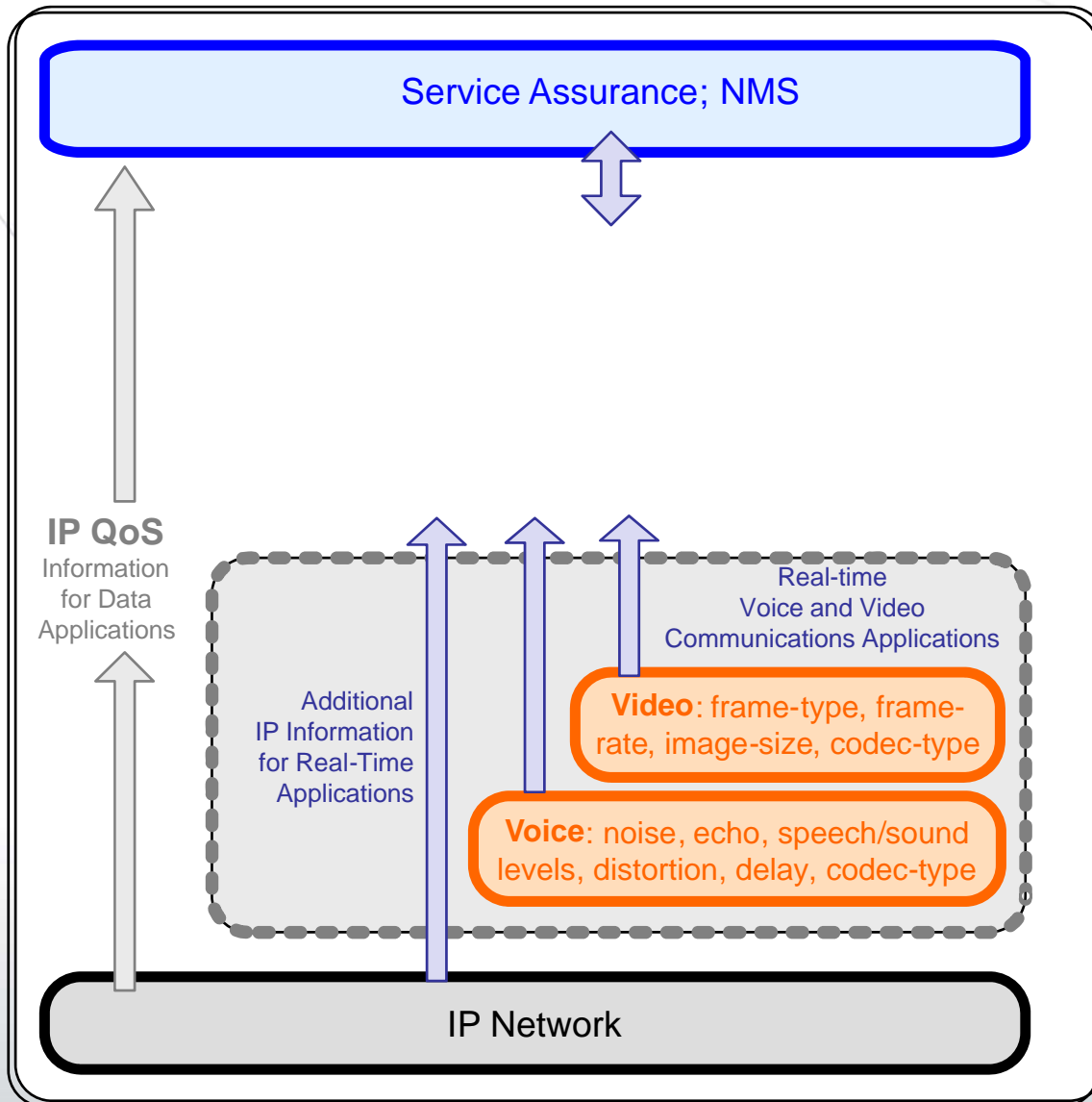
Managing real-time applications



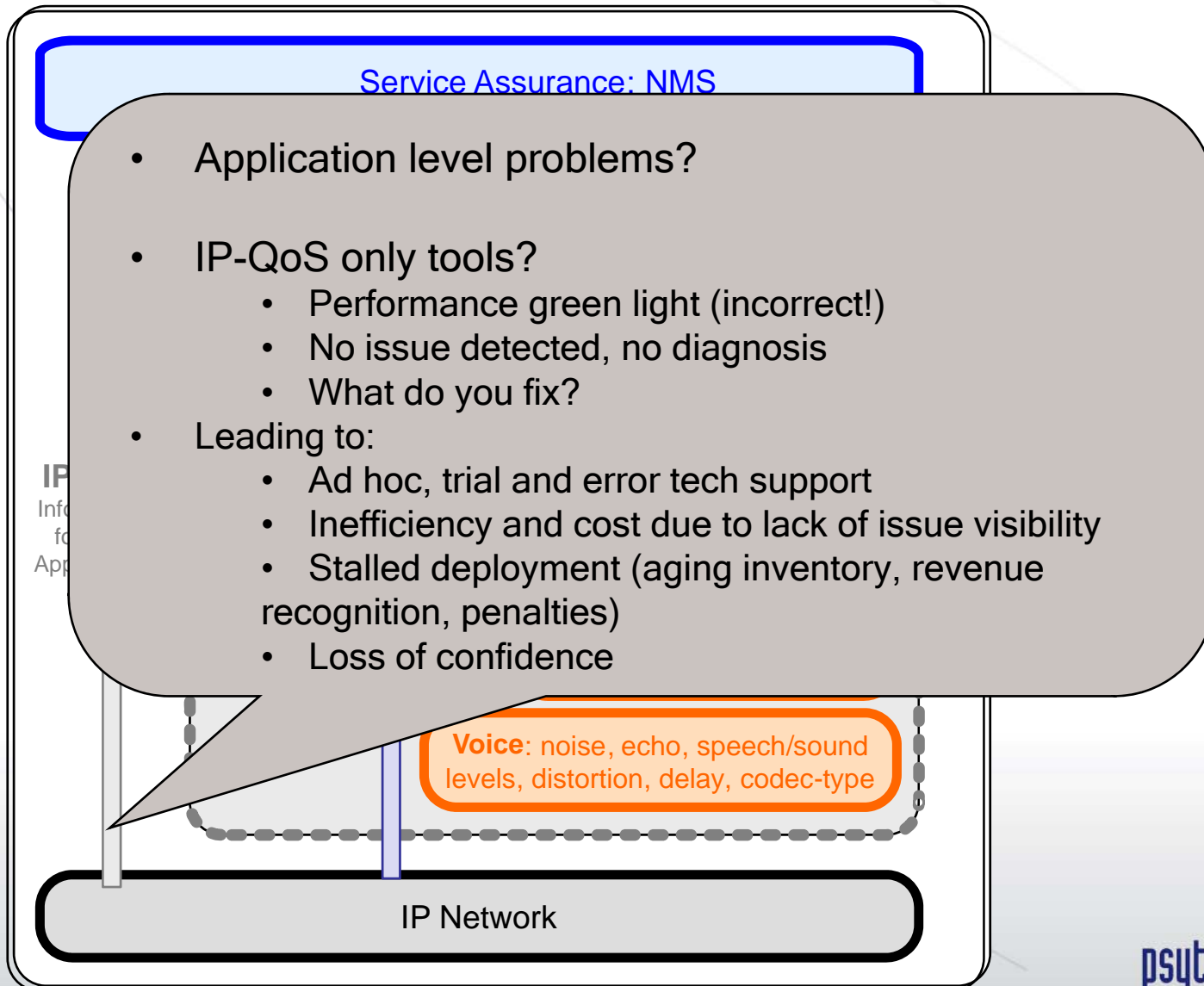
Enter real-time communications applications



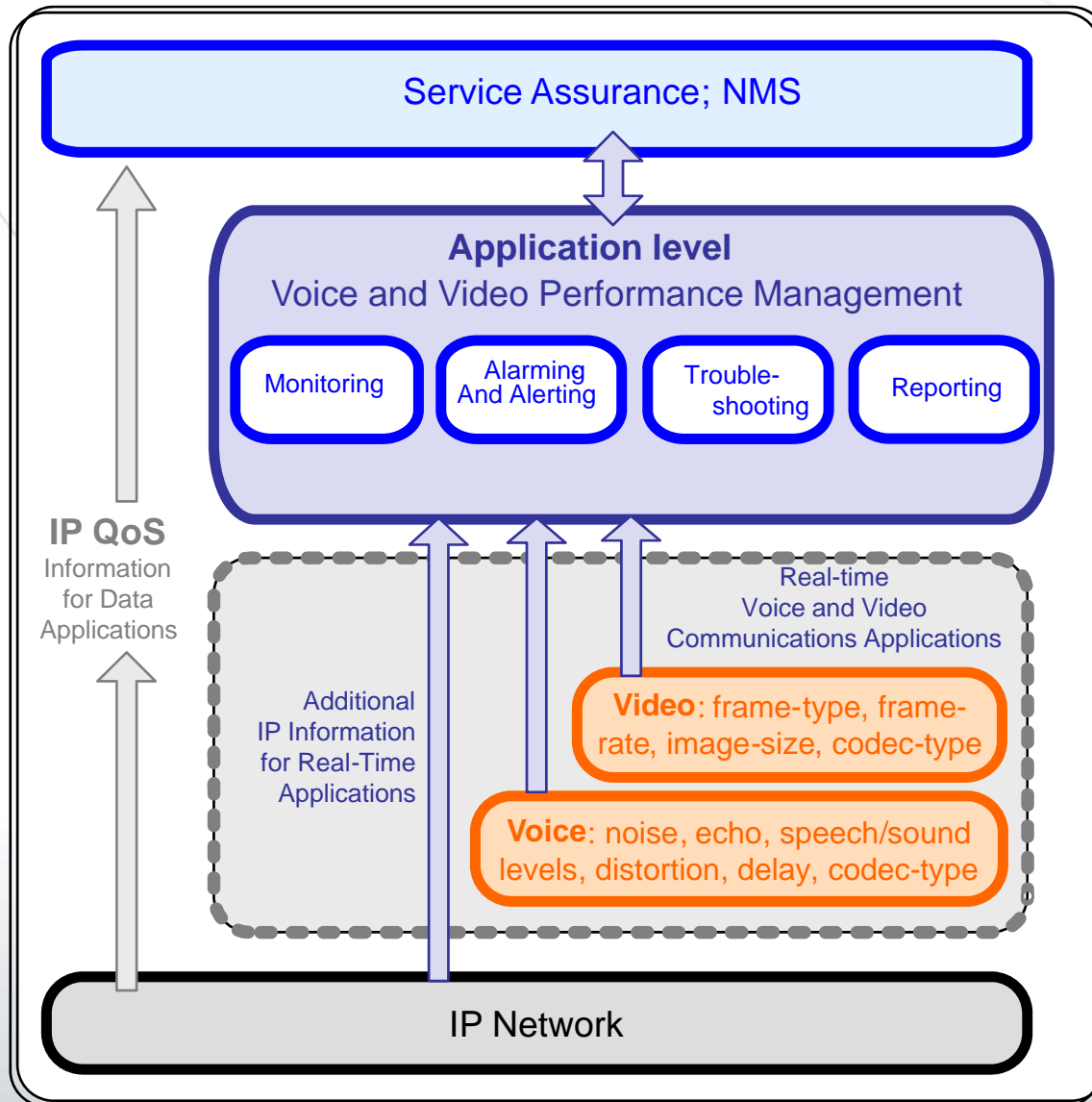
Different information needed for voice and video performance management



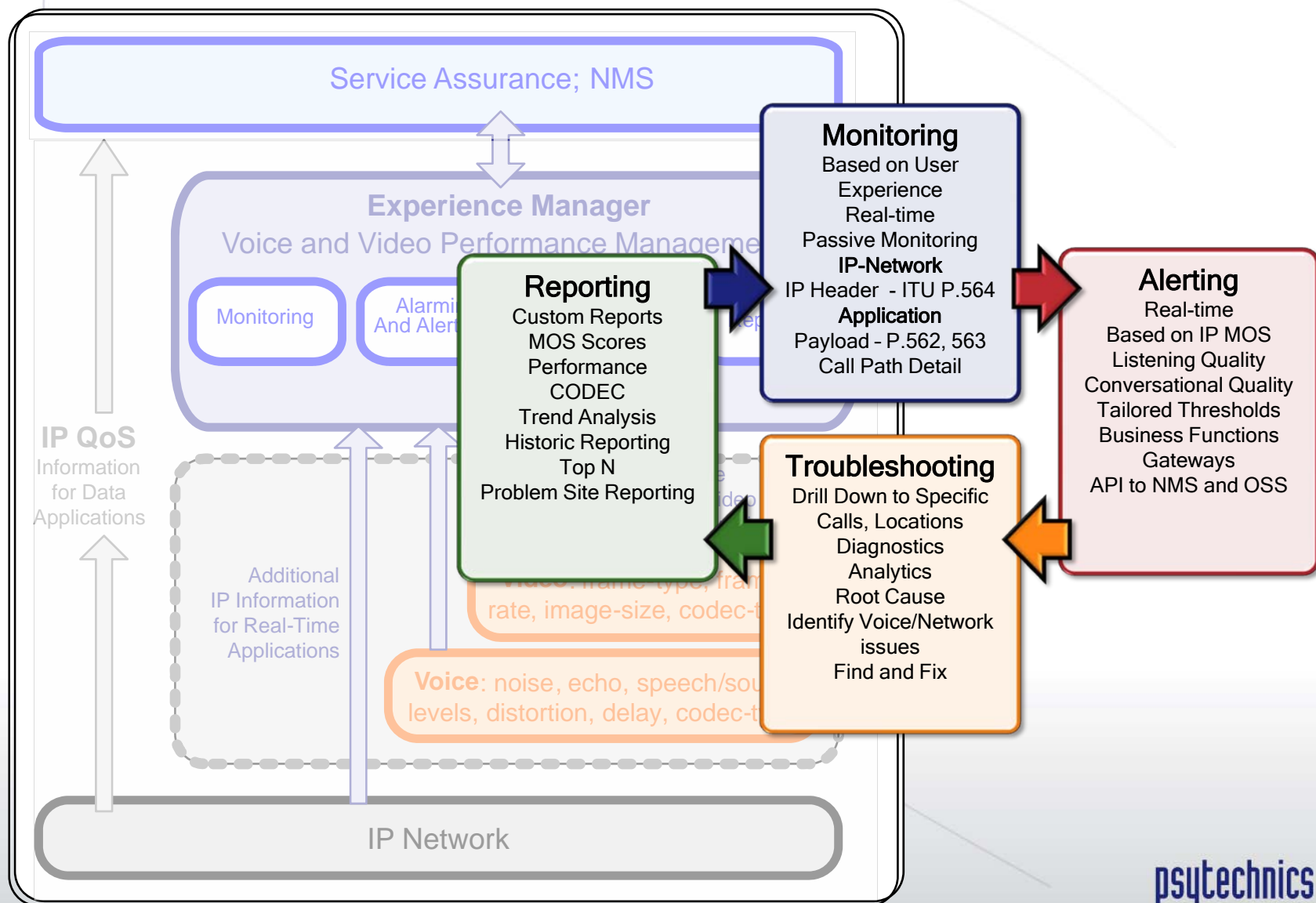
Different information needed for voice and video performance management



Experience Manager uniquely provides real-time voice and video performance management



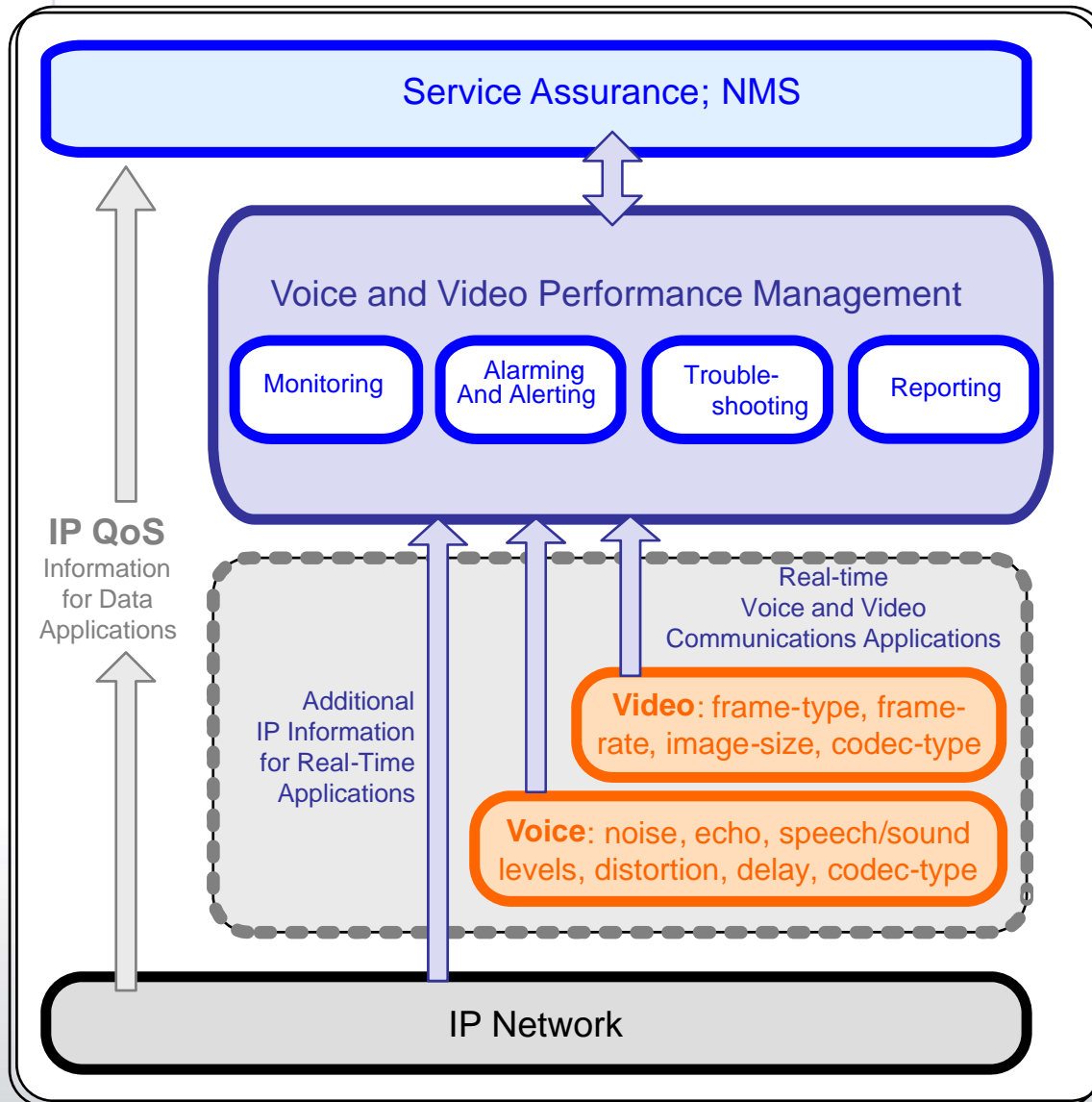
Experience Manager uniquely provides real-time voice and video performance management



Network and application performance

Type of issue	Example causes
<i>IP-Network problems</i>	
LAN congestion	Packet loss and jitter Leading to speech loss/distortion
Diverse routing	Out of sequence packets, packet loss Leading to speech loss/distortion
WAN QoS miss-configured	Delay, packet loss and jitter Leading to speech loss/distortion
<i>Application level problems</i>	
Levels	Gateway pads, incorrect/faulty terminals, PBX faults, peering
Noise	Noise floor from AGC, faulty terminals/PBX/DSP, trans-coding
Echo	Poor edge devices, faulty/under-provisioned echo cancellers
Speech distortion	Poor/faulty edge devices (PC sound cards), trans-coding, gateway/PBX DSP
Delay	Low cost routing, failure of anti-tromboning, excessive coding stages

Industry leading ITU standards based measurements



Passive measurement

P.564

IP-Network
impact on QoE

P.562

Voice conversational
performance

P.563

Voice distortion

Active Measurement

Voice

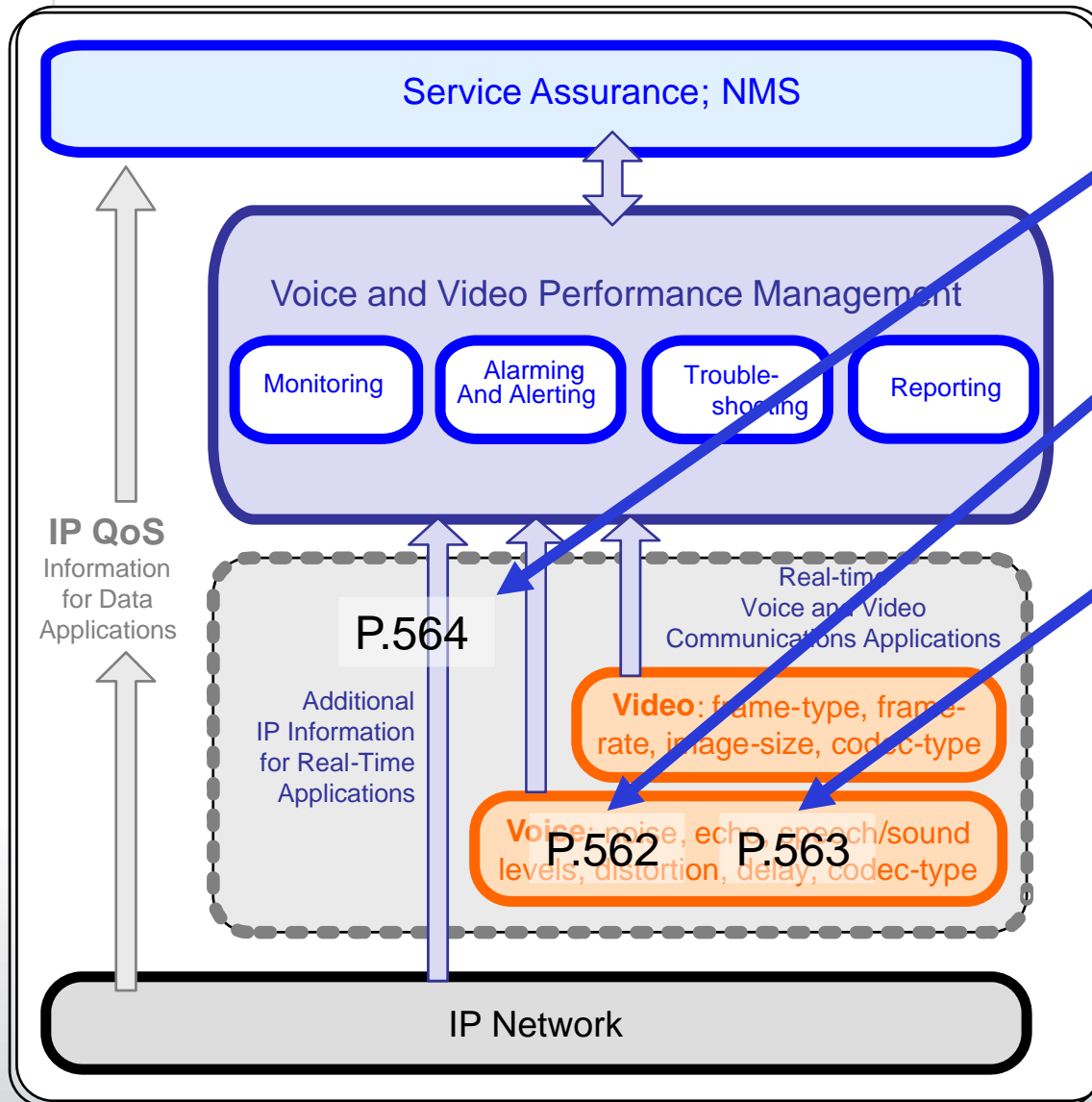
P.862.1 PESQ

P.862.2 WB PESQ

Video

J.144 SD TV

Industry leading ITU standards based measurements



Passive measurement

P.564
IP-Network
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P.562
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P.563
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Active Measurement

Voice

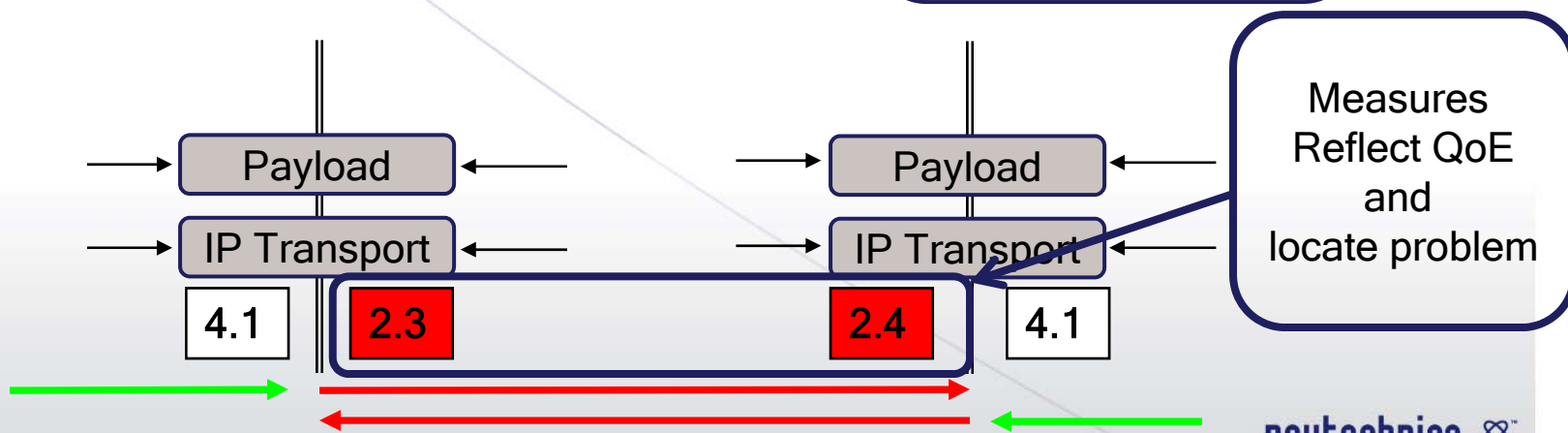
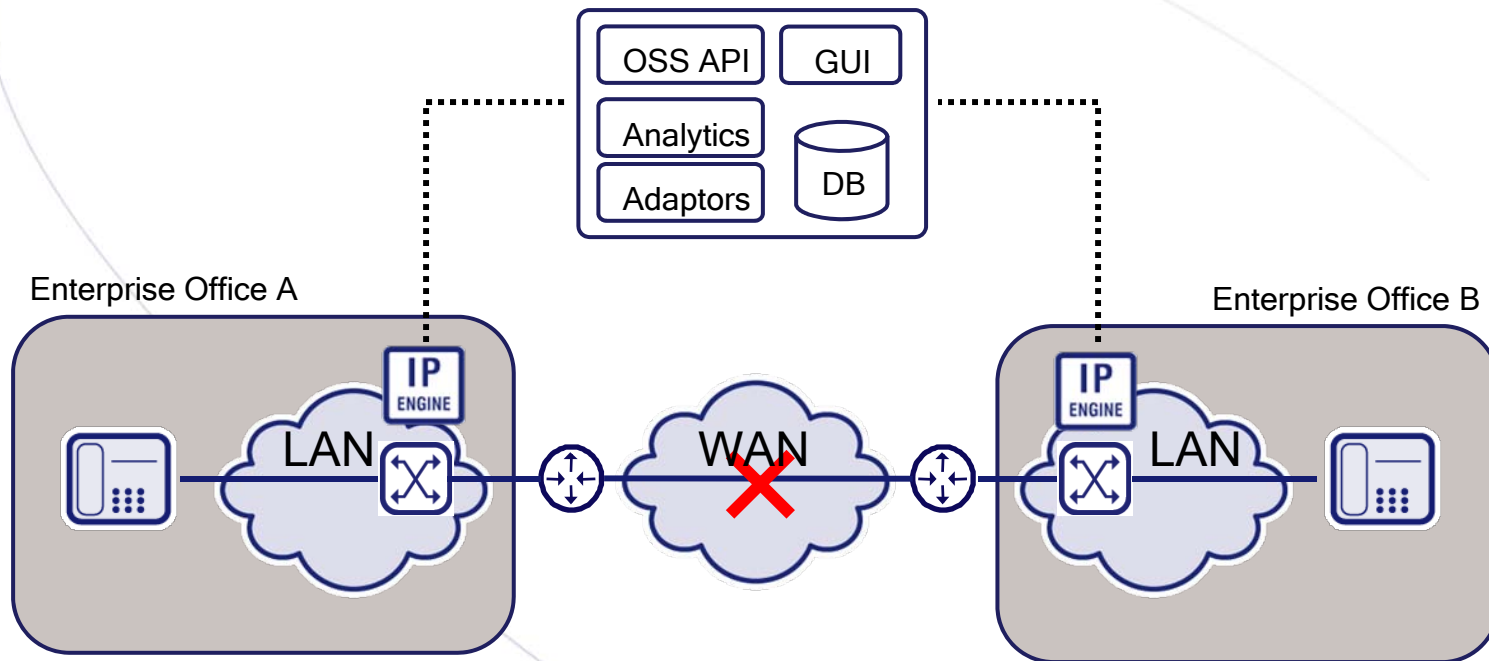
P.862.1 NB PESQ
P.862.2 WB PESQ

Video

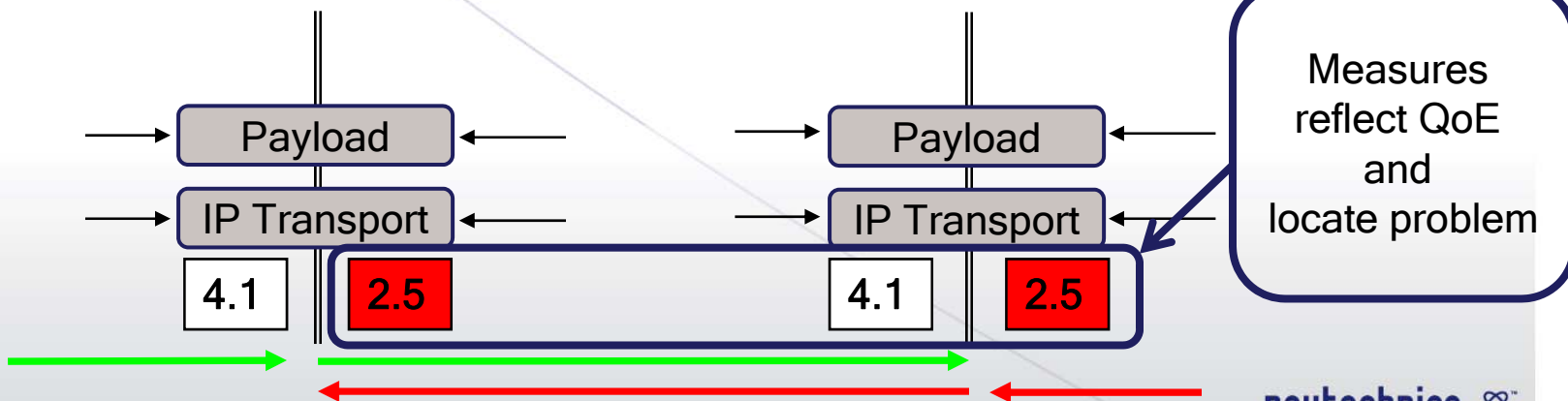
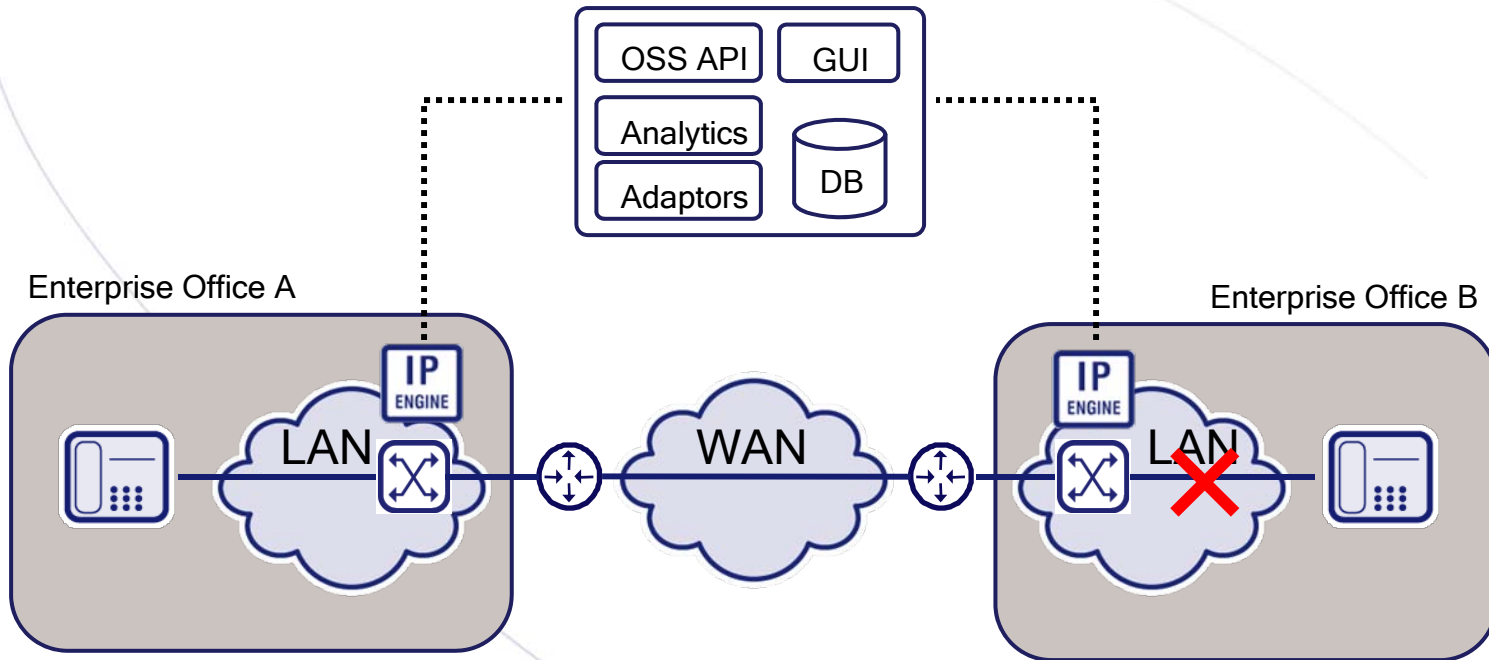
J.144 SD TV

VQEG 

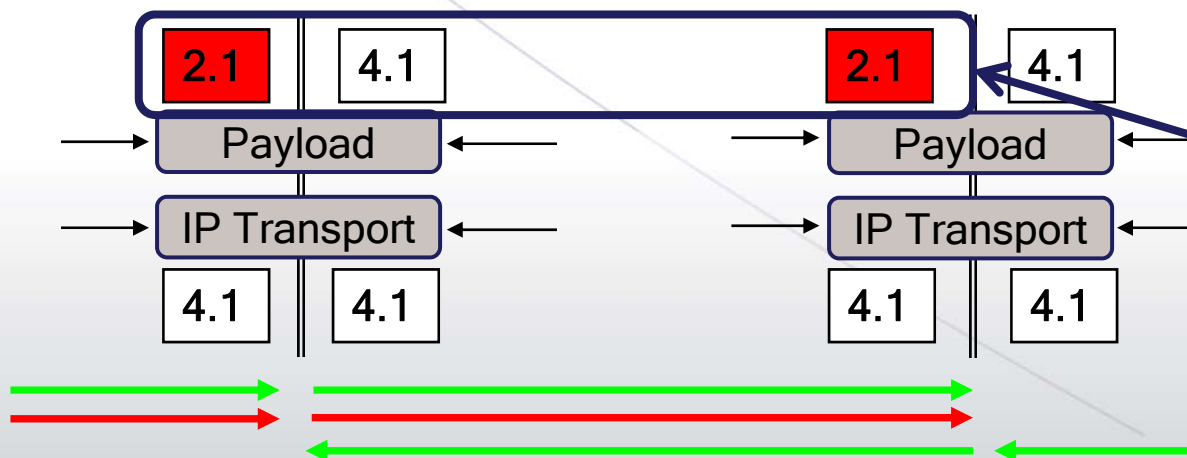
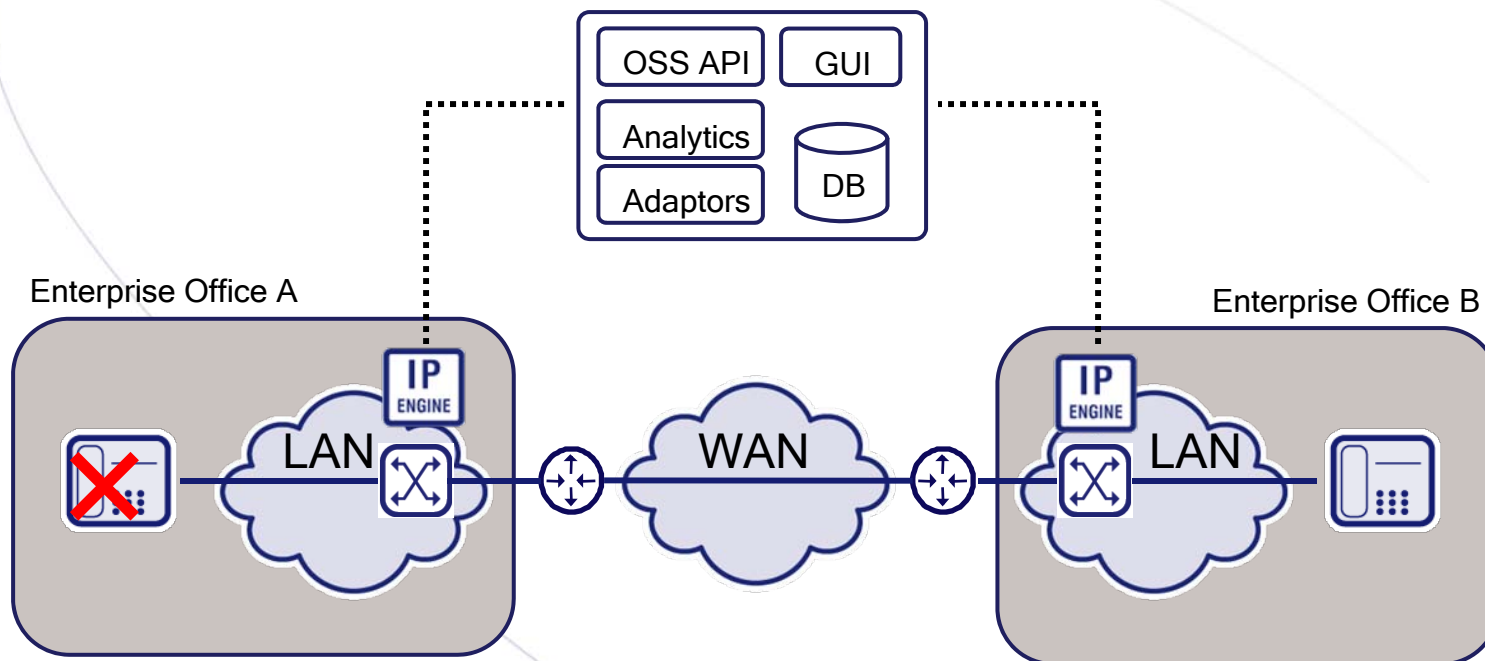
Connection Scenarios – WAN issue



Connection Scenarios – LAN issue

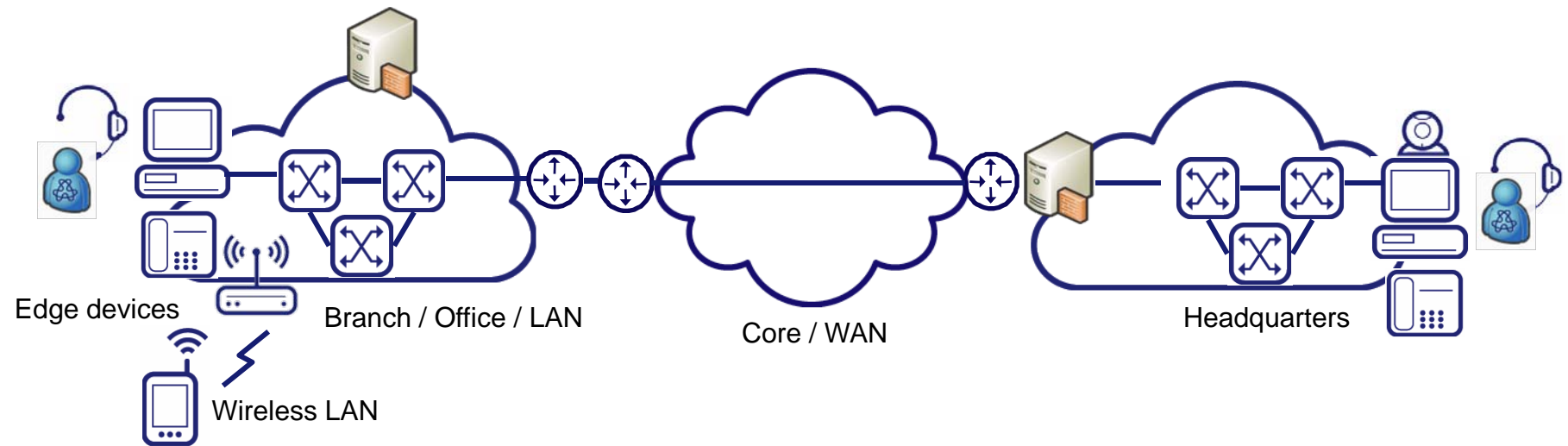


Connection Scenarios – Headset level

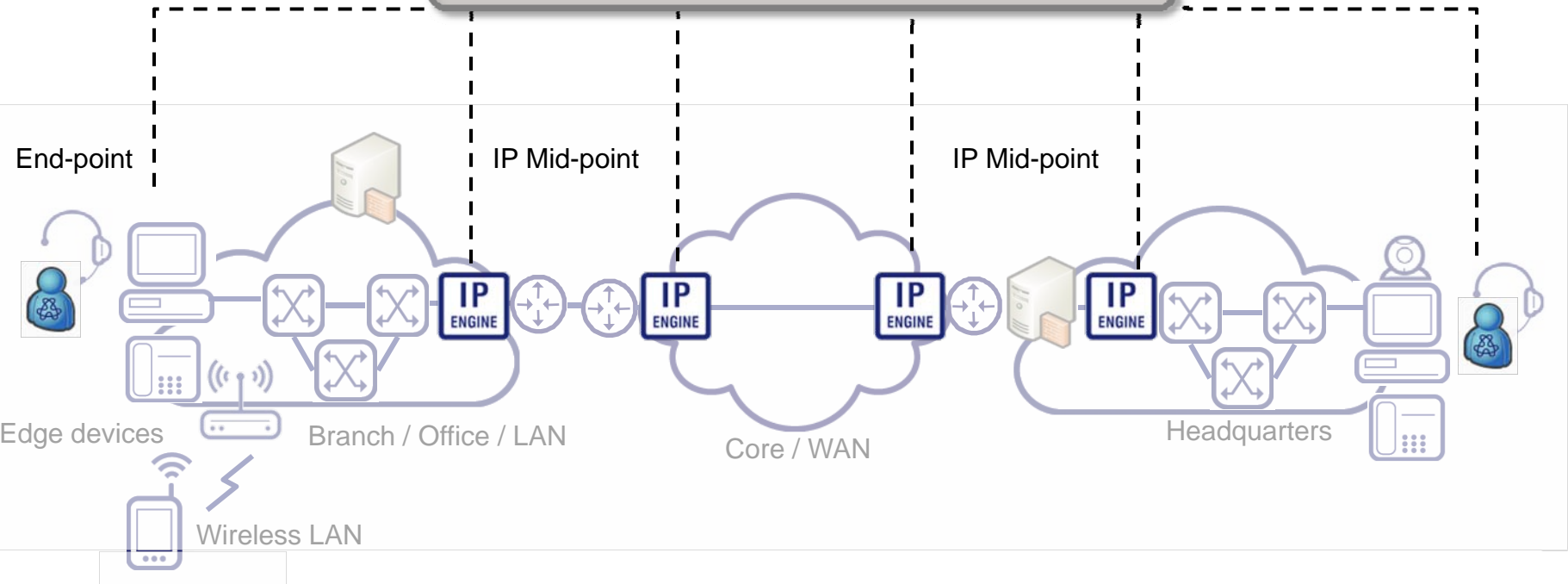
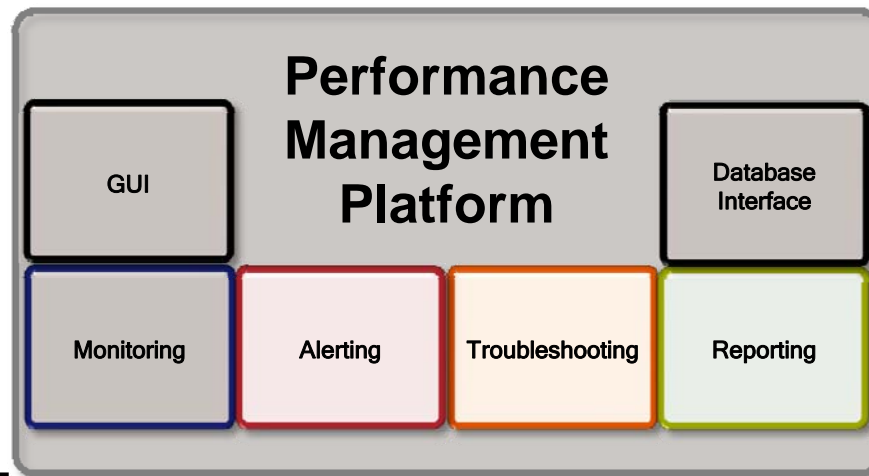


Payload Measures allow previously undiagnosed issues to be resolved.

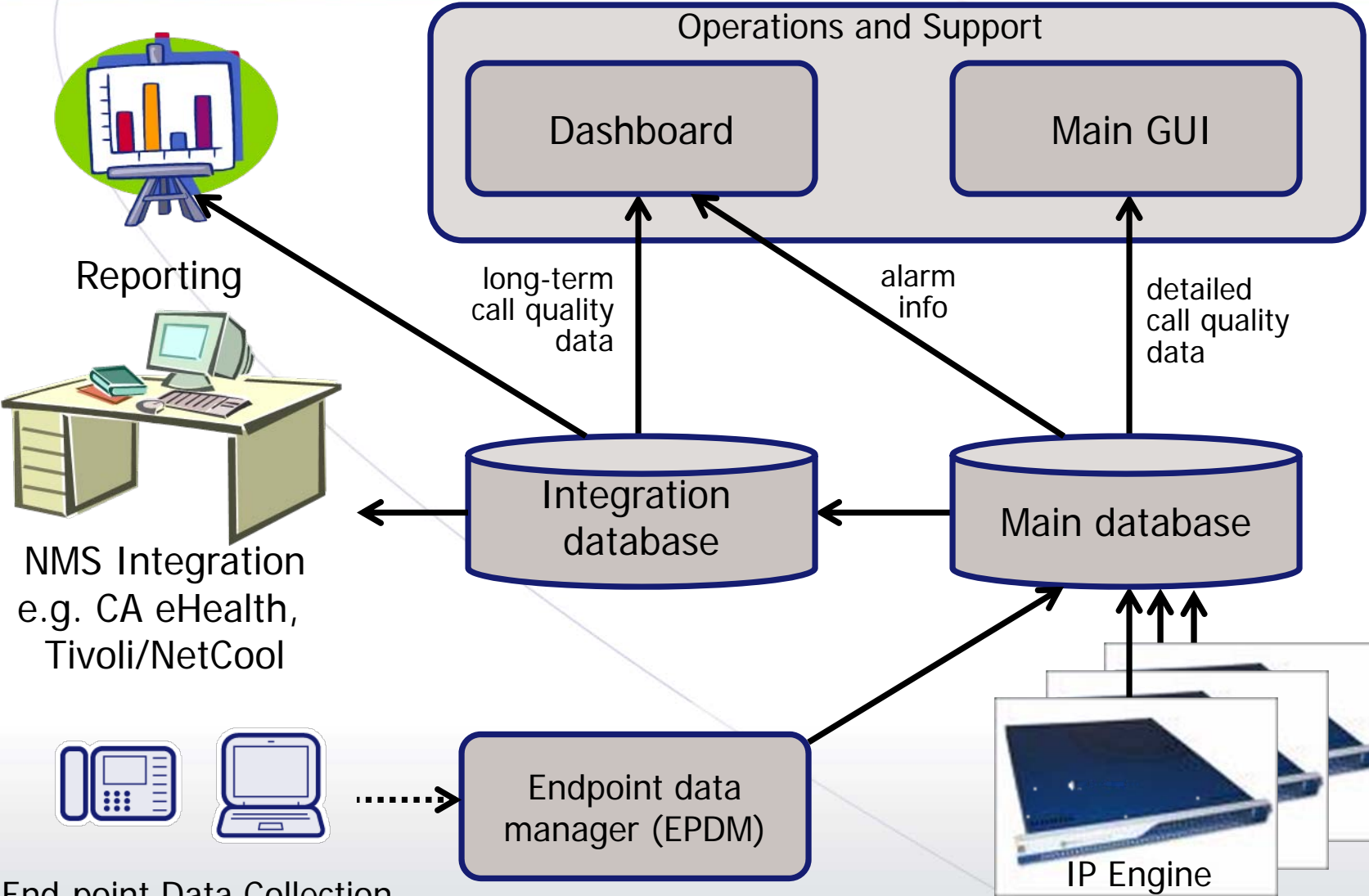
Solution Architecture



Solution Architecture



Solution architecture

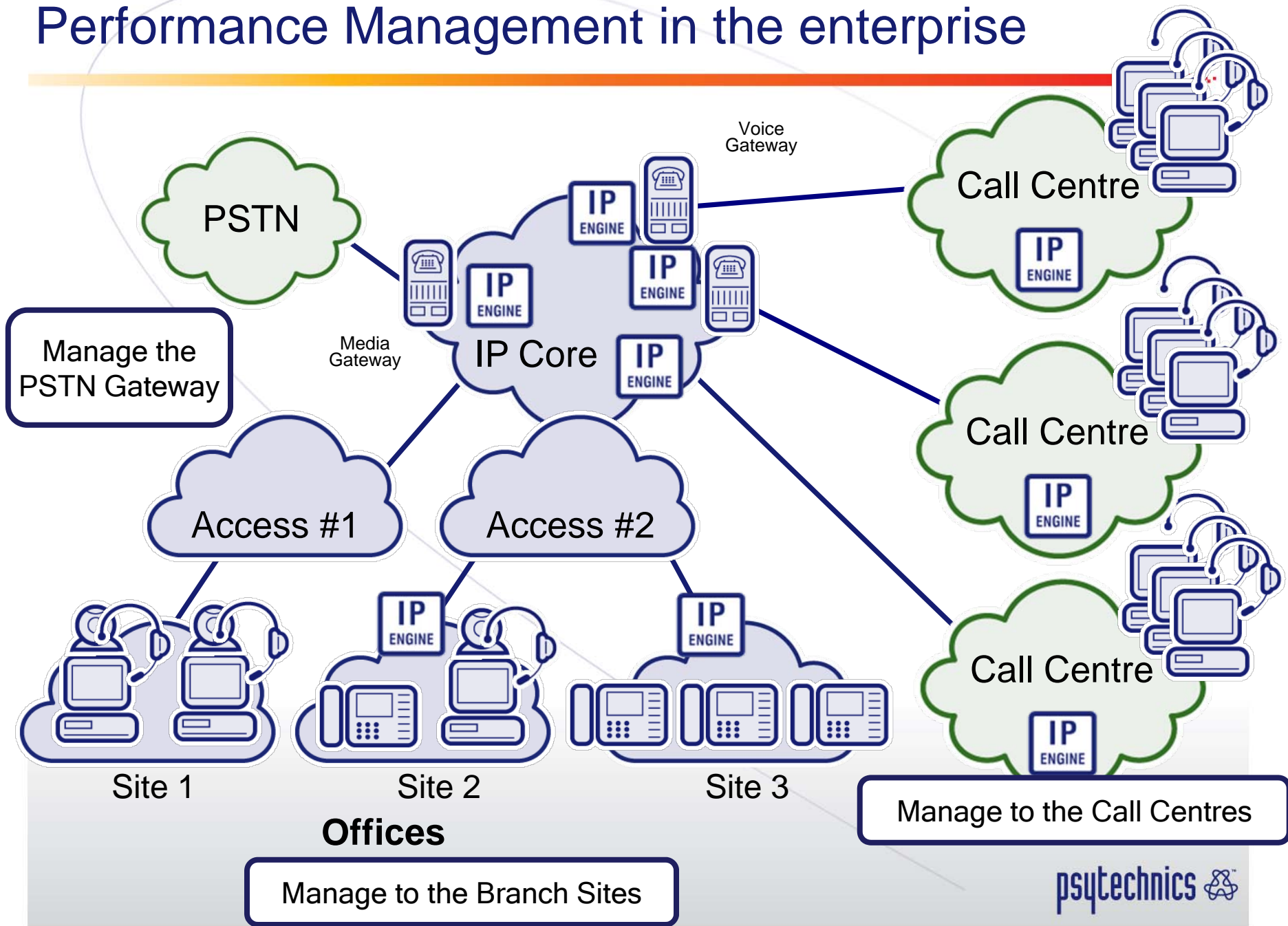


NMS Integration
e.g. CA eHealth,
Tivoli/NetCool

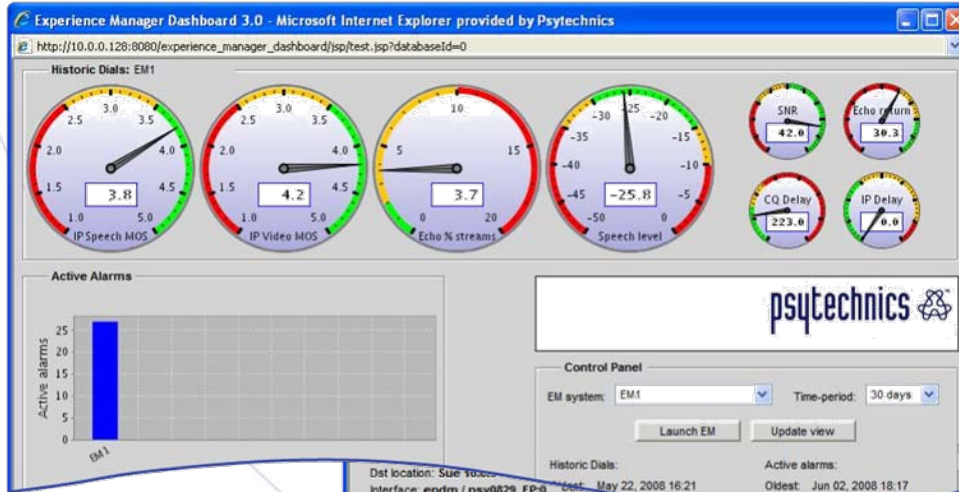
End-point Data Collection
e.g. Microsoft, Sametime?



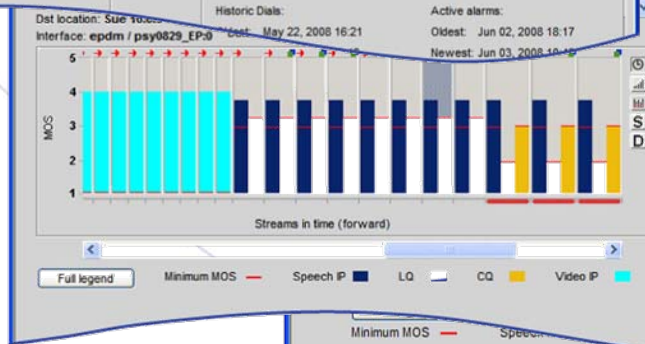
Performance Management in the enterprise



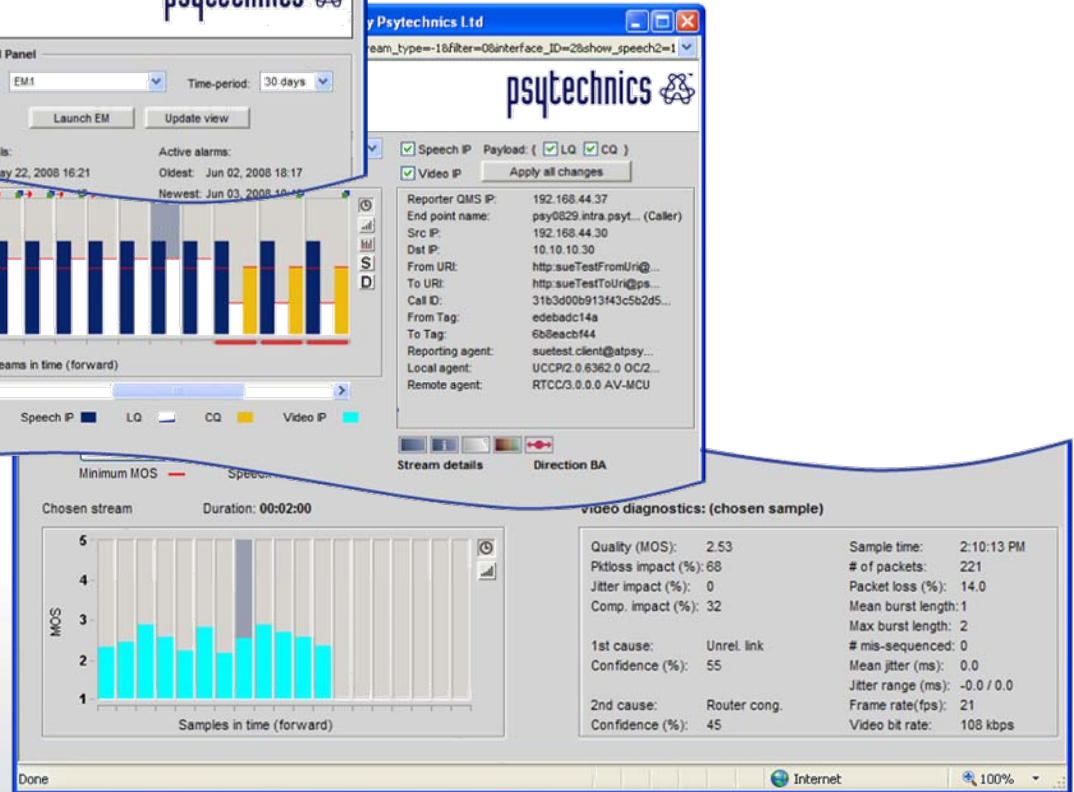
Advanced product capability



Real-time dash for monitoring

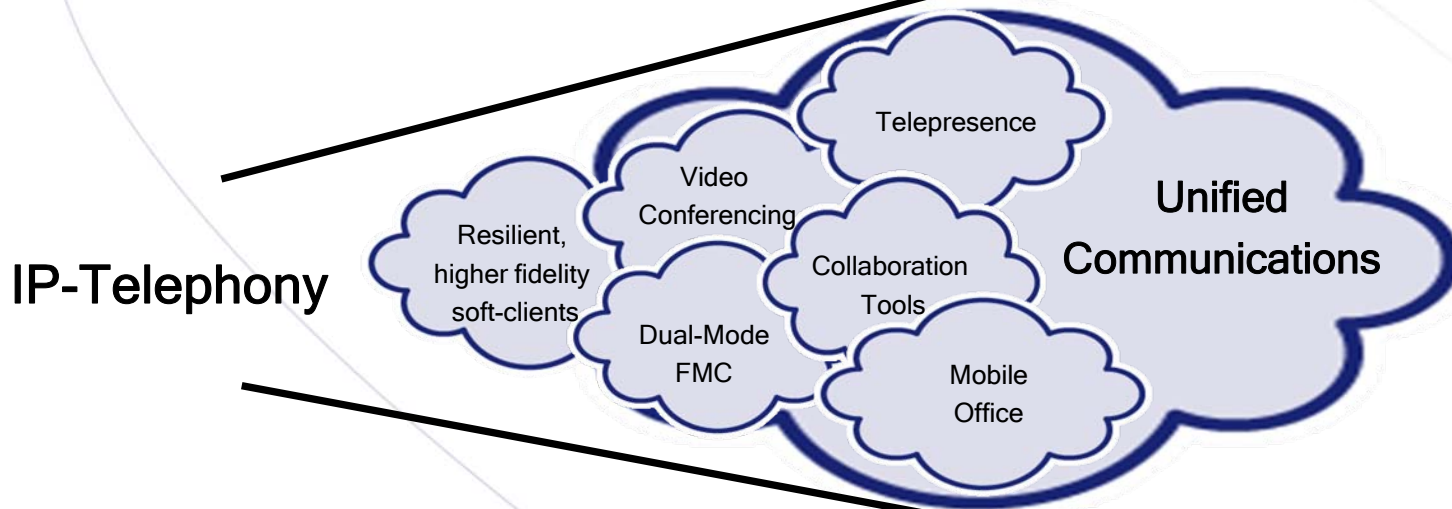


Enhanced diagnostics including 3rd party end-points



Video assessment and root-cause analysis

Enterprise Communications Landscape



- Majority of enterprises are deploying IP-Telephony/VoIP
- Relevant to enterprise and MSP
- Companies will evolve from IPT to further enhance productivity e.g.
 - Video conferencing
 - Soft-clients and OCS
 - Mobile-enterprise/Fixed-Mobile-Convergence e.g. cell phones roaming onto campus WiFi
 - Collaboration tools (shared data space plus video)
- Adoption against individual ROI/business case
- Eventually arriving at a unified communications capability
- Visionary companies fully embracing unified communications

Summary

- IP-network and application performance
- Unique technical capability
- Practical importance of application performance
- Example deployments and use scenarios
- Market landscape – next steps

Conclusion

- Communications application performance management required from the start of deployments to avoid
 - Loss of user confidence
 - Inefficient and costly remedial action
 - Budget exhaustion
- Timely deployment ensures
 - Successful deployment
 - Delivery of business value from IP-Telephony
 - Acceptance, re-use and expansion of business value
- A new generation of practical, future-proofed, performance management tools for real-time voice and video

Psytechnics Overview

- World authority in voice and video quality assessment
 - Delivered technology and expertise behind 6 ITU world standards for quality measurement
 - 35 patents and continued innovation
 - Grounded in 15 years of research in BT and Psytechnics laboratories and 500k subjective test results
- Business focused on Experience Manager solution for voice and video performance management
- Unique real-time measurement of voice and video quality to predict the customer's experience; set to change how we manage and provision for service delivery
- Used by IBM, Microsoft, BT, etc. for strategic VoIP and Video projects. Now partnering with CA
- Increasingly recognised by the industry and being adopted for large scale IP Telephony and video conferencing deployments

