



## Beethoven MP 100

### Advanced Voice Quality Monitoring for Your Network

Assuring Service and Performance levels in your voice network helps to keep you ahead of your competitors. Visibility to call and signaling information, including customer experience metrics gives you the control that allows you to deliver increased customer satisfaction and to maintain excellence in your network operations and support.

The Beethoven MP 100 is a Voice Quality Monitoring system intended for Network Operators and Service Providers needing a network integrated monitoring solution to manage and assure quality of service in the Voice Network.

This solution is tailored to facilitate both non-intrusive and intrusive testing of operator network configurations including GSM/CDMA, Circuit Switched PSTN, Wireless Local Loop and Voice over Packet.

Applying the latest Voice Quality Metrics in combination with intelligent signaling analysis, the Beethoven MP 100 delivers unparalleled visibility of your voice network operation.

The Beethoven Solution can be scaled to your network and analysis needs. Distributed MP 100 elements are controlled and managed by the Beethoven Management System, allowing a full picture of your voice network performance to be derived at a glance.

- Carrier Class, Integrated Voice Quality Monitoring System
- Interchangeable interfaces include POTS, E1, T1, VoIP, VoDSL
- Signaling Protocols include MGCP, SS7, V5.2, SIP
- Apply the latest Voice Quality Analysis algorithms: PESQ (ITU-T P.862), P.SEAM (ITU-T P.563), E-model (ITU-T P.107)
- Advanced Management and Control system to collect and analyse data and alarms in your network

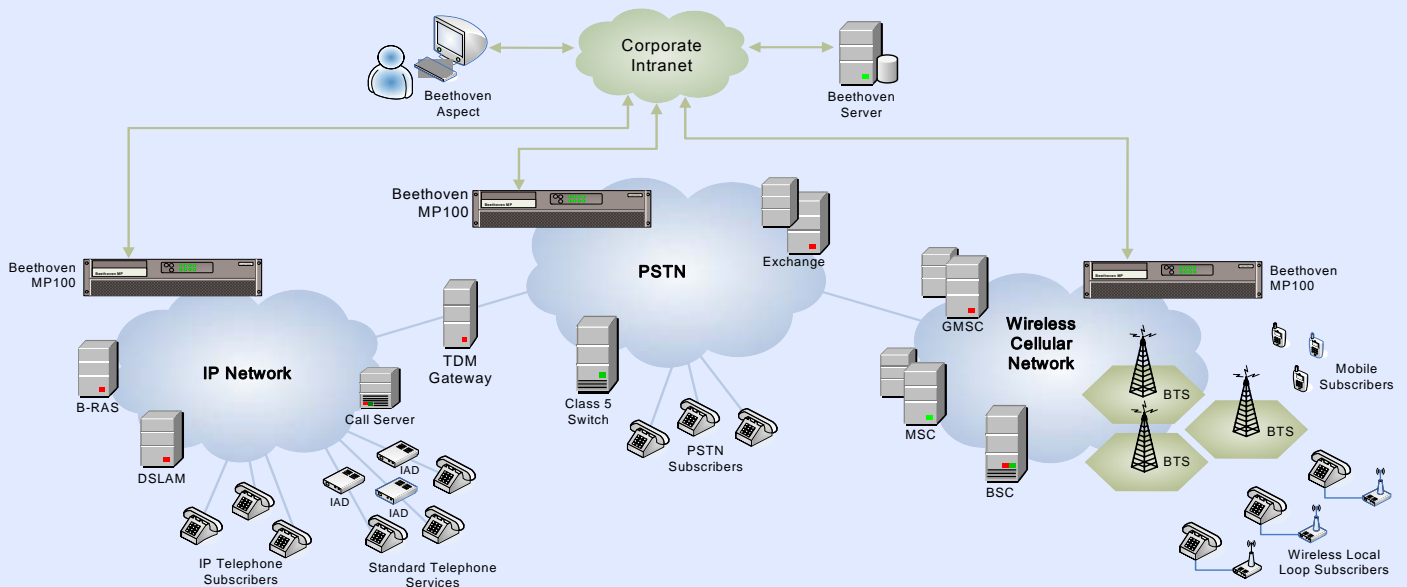
*“Beethoven objectively evaluates the quality of voice in your network, empowering you to deliver high quality service and increased customer satisfaction”*

# Features

- Intrusive and Non-intrusive Voice Quality Analysis metrics including Mean Opinion Score (MOS) using P.SEAM (ITU-T P.563), PESQ (ITU-T P.862), E-model (ITU-T G.107)
- Signaling protocol monitoring, include MGCP, H.323, SS7, SIP, V5.2
- Scalable architecture, configurable interfaces
- Intuitive web based Management System
- Detail Call metrics for each call are stored in a central database
- Alarm generation

# Benefits

- Customer experience management, allowing voice service problems to be pro-actively monitored and managed
- Targeted call analysis to assist with rapid fault isolation
- System can be scaled to your network requirements
- Simple management, global access, automatic report generation
- Data mining and baseline trends identified for your network
- Intelligent Alarm generation and filtering using trend and event data



## Specifications Summary

### Voice Quality Metrics

Transmission Rating Factor	ITU-T G.107 E-model
Mean Opinion Score	Non-intrusive P.SEAM (ITU-T P.563)
	Non-intrusive E-model (ITU-T G.107)
	Intrusive PESQ (ITU-T P.862)
Echo	Echo Return Loss, ERLpeak, transmission delay
Double Talk	% Double talk, Double Talk Muting, Front end clipping
Background Noise	Periods of non-speech, noise measurement
Speech Power Level	Power level
Voice Activity Detection	Voice classification
DTMF detection	Configurable sensitivity

### Interfaces

Type	2.048Mbps (E1) 1.544Mbps (T1), POTS, 10/100/1000Mbps (VoIP), xDSL (VoDSL)
Density	Configurable
Flexibility	Interfaces can be freely combined in the six available slots of a single MP 100

### Physical, Mechanical & Power

Ambient Operating Temperature	5°C to 40°C
Power Supply	Dual, redundant -48VDC
	-36VDC to -64VDC operating range
Rack Mounting	19/23 inch rack mountable
Height	88mm (2U)
Width	435mm
Depth	508mm

### Regulatory Compliance

Safety	UL 60950, CSA 60950, IEC 950, TUV/GS EN60950
EMC	Verified to FCC Class A; tested to CISPR 22 Class A, EN55022 Class A, VCCI Class A ITE, AS/NZS 3548 Class A, CNS13438
Immunity	EN 55024
NEBS/ETSI	Bellcore GR-63, GR-1089, ETSI 300 386, 300 019, 753



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