



CommProve



ITU Workshop on Telecommunications Service Quality Rio de Janeiro, Brazil, 27 - 29 November 2017

***Delivering excellence in customer experience
through Big Data solutions***

Better insight, better results



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Agenda

- ⦿ About CommProve
- ⦿ CommProve Solution
- ⦿ Introduction
- ⦿ Customer Experience Management challenges
- ⦿ CommProve Big Data Approach
- ⦿ CommProve Use Cases
- ⦿ Conclusion
- ⦿ Q&A



- ⦿ Founded 1996 - In Italy
- ⦿ Privately held company
- ⦿ Locations:
 - HQ Ireland
 - Italy, France, South Africa, Kenya, Argentina and Brazil
 - Russia - R&D outsourcing
- ⦿ 90+ HCs globally
 - 50%+ in Development
- ⦿ Leading provider of Service/Revenue Assurance solutions for network operators





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Company Facts & Figures

- Real-time data correlation, processing and visualization of very large distributed repositories of information
- >330 million subscribers monitored in real-time
- 10 billion transactions/per day in real-time (large implementations)
- >6,000 probes shipped
- Tier one MNOs across four continents, direct customers and via partnerships
- Covering radio, access and core network interfaces on 2G/3G/4G for both voice and data and for control and user plane; end-to-end correlation across interfaces scaling whole networks in real-time and 24/7.

- Meeting crucial customer needs
- Strong Customer Base



2010



Red Herring 100 Europe Winner

2009



Frost & Sullivan Best Practice Award

2007



GSMA Global Mobile Awards 2007



Complete Suite of Solutions

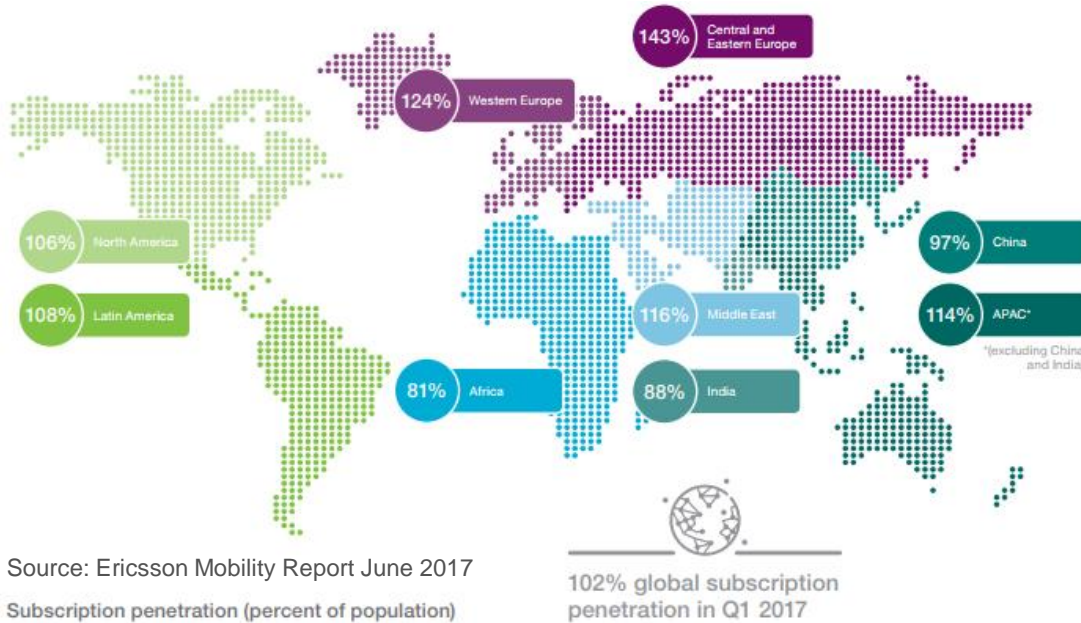
- Business Assurance
- Service Assurance
- Performance Management
- Regulators QoS Solution
- Cell Radio Optimization
- Prediction Solution

Mature Platform Capabilities

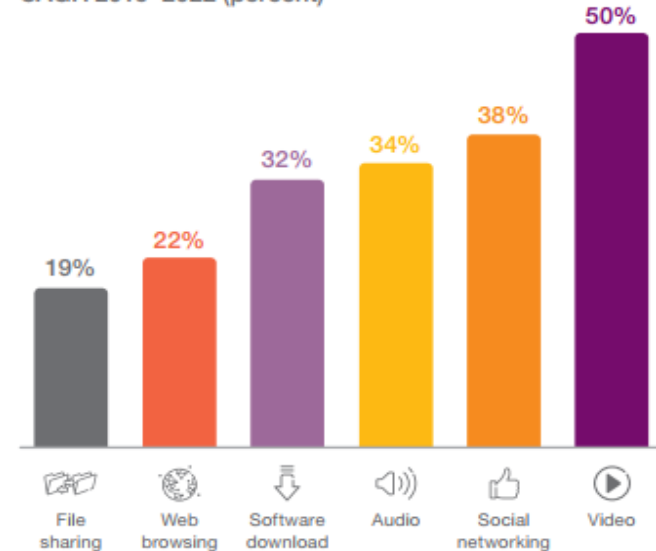
- Big, fast data storage & handling
- Numerous interfaces
- Flexible data acquisition
- Patented correlation techniques

Covers entire network lifecycle





Mobile traffic by application category CAGR 2016–2022 (percent)



- Traditional Databases and Business Intelligent solutions have shown limitations to handle high volume of data with high velocity and complex computations.

- While Big Data solutions can handle the high subscription penetration and the fast growth of mobile traffic, delivering the best customer experience is still a challenge



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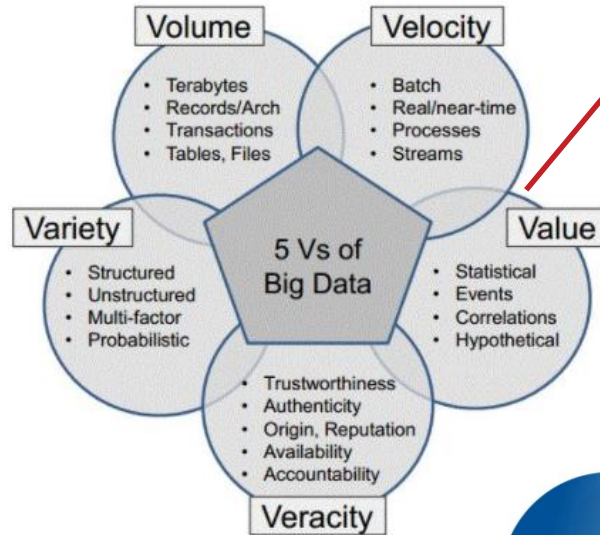
Customer Experience Management challenges

- ⦿ Delivering excellence in customer experience requires involvement of everyone within the service provider's organization.
- ⦿ Below are common challenges for customer experience management:
 - ⦿ Which data to consider for customer experience management?
 - ⦿ How to provide values to different departments using the same solution?
 - ⦿ How to provide customer experience visibility for different skills in the same department?
 - ⦿ How to improve efficiency of customer experience management?
 - ⦿ How to ensure proactive customer experience management?

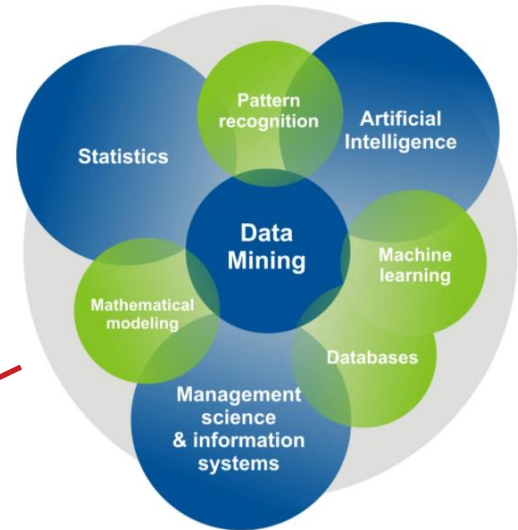


Which data to consider for customer experience management?

- OSS Counters
- xDRs
- Drive Testing
- Fault Management
- Trouble Ticket
- CRM
- DPI
- Customer feedback Survey
- Churned Subscribers
- Crowdsourcing
- Social network data
- Web scrolling & logs
- Socio-demographic data
- ...



Big Data



Data Mining

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- ⊙ How to provide values to different departments using the same solution?
 - ⊙ CommProve Solution provides verticals for every department using the same data and breaking the silos by intelligently modeling Terabytes of data to bring the flow based on the services.

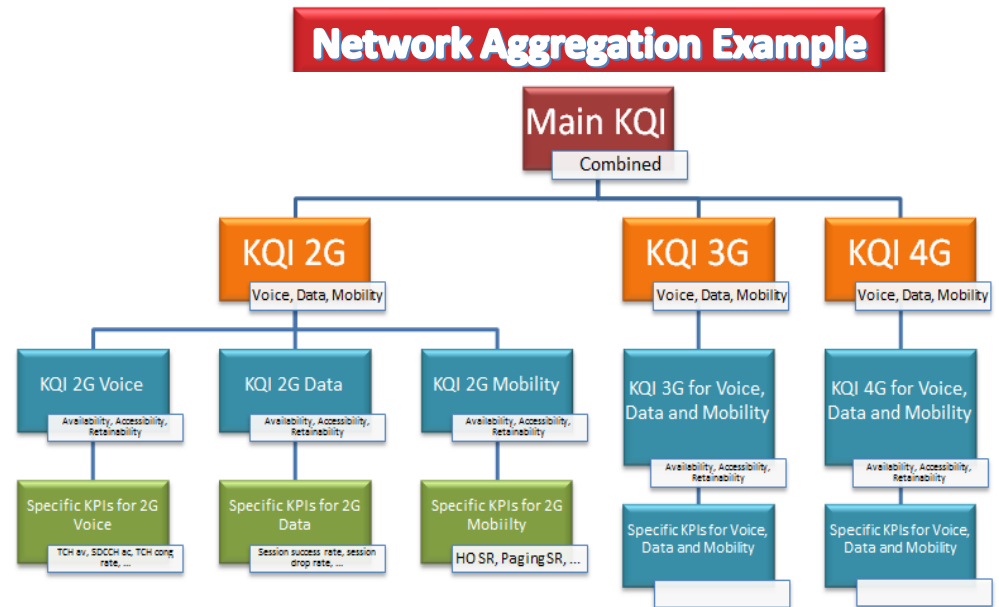


- ⦿ How to provide customer experience visibility for different skills in the same department?
 - ⦿ CommProve Solution provides drilldown for each verticals by using Tree-based in-memory aggregations to address different level of details for different set of skills.

Hi-level views for Global KBIs/KQIs

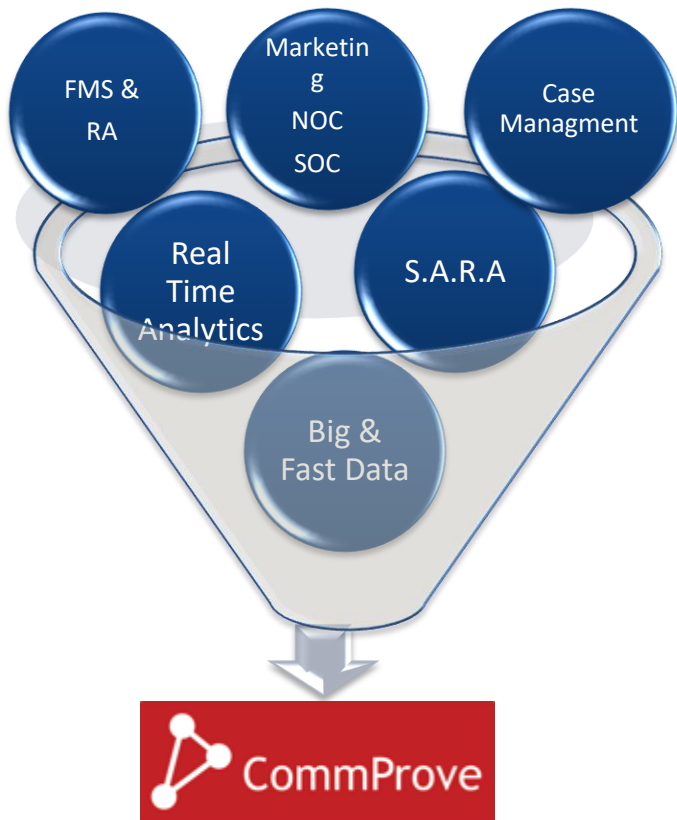
Middle-level views for Service and Network-based KQIs/KPIs

Low-level views for details (KPIs, location, devices, failure causes, etc)

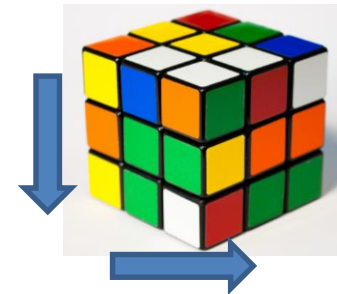




⊙ How to improve efficiency of customer experience management?



- ⊙ Consolidated Solution for multiple departments
- ⊙ Case Management integration
- ⊙ Fast & Real-Time Big Data (Micro-batching for streaming)
- ⊙ S.A.R.A : Semi Automated Root Cause Analysis
- ⊙ Weighted User-Centric KQIs, Benchmarking and Scoring
- ⊙ Customizable KPIs, Reports and Drag&Drop Analytics.

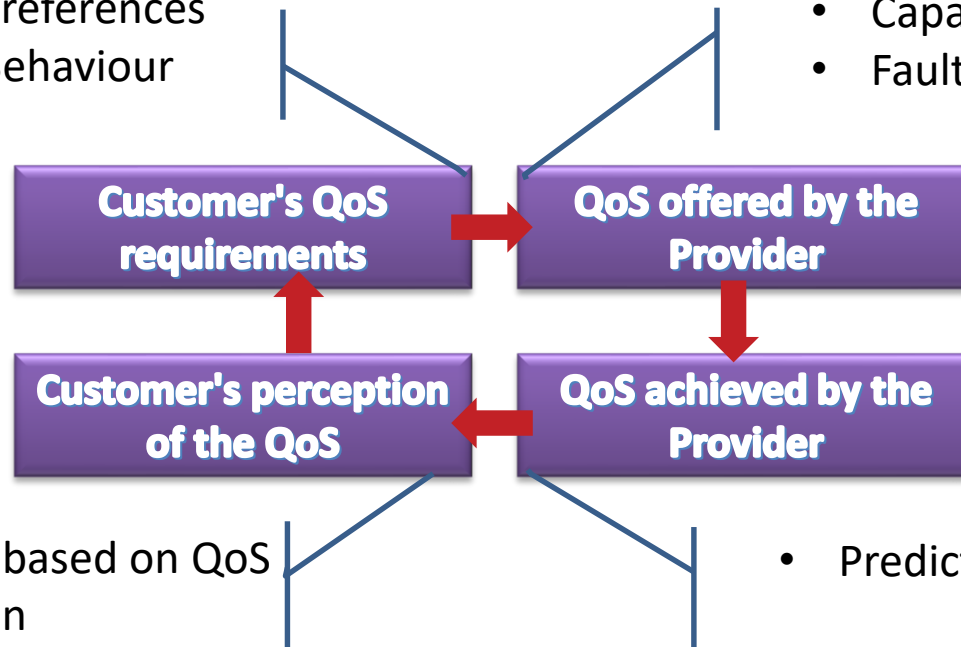


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⊙ How to ensure proactive customer experience management?

- Customer segmentation
- Customer Preferences
- Customer Behaviour

- Capacity Prediction
- Fault Prediction



- QoE prediction based on QoS
- Churn Prediction

- Predictive Simulation



- ⊙ Real-Time alarming
 - ⊙ 1min email/SMS alarming system for any cells below a specific KPI threshold

- ⊙ VoLTE Subscribers classification based on Speech Quality enhanced MOS
 - ⊙ $QSS \text{ (Quality Speech streaming)} = W1 \times MOS + W2 \times \text{MissedVoice} + W3 \times \text{SilentCall} + \dots + Wn \times KQIn$
 - ⊙ Poor, Fair, Good, Good and Excellent Quality

- ⊙ IoT Monitoring
 - ⊙ Geo-Localization of IoT Devices
 - ⊙ NB-IoT performance Metrics (Accessibility, Latency, Throughput, etc)

- ⊙ Fake/Counterfeit devices detection
 - ⊙ Benchmarking Devices Specifications vs Capabilities



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Conclusion

Delivering excellence in customer experience requires innovative ways for **multiple data source aggregation** and **representation techniques** which enable different departments to have a **holistic view** of the quality perceived by each user and in comparison, with other segments (e.g. VIPs, Roamers, etc.) by using latest ICT improvement such as **Big Data** and **Artificial Intelligence**.



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Q&A



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