

# The Challenges of Collecting Data for Sophisticated and Nomadic Targets in Next-Generation Networks

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# Who am I and why am I here?

## → Shane O'Flynn

- A software architect & engineer in a telecoms software company
  - Delivered solutions into 40 plus operators worldwide
  - Focussed on network edge solutions - Charging, Mediation & DR/LI
- Openet solutions process more than 20 billion events and transactions every day. We help clients:
- Bill more than \$10 billion in revenue each month customers
  - Create new business models and rapidly deploy services
  - Enable subscribers to personalize their experience
  - Dynamically control the allocation of network resources
  - Gain visibility into network usage to improve business operations
- We do this for more than 70 telco's & 350 million subscribers...

# Data Retention: Regulation

- ➔ EU Directive 2006/24/EC for retention of data generated or processed in connection with “publicly available electronic communications services” and “public communications networks”.
- ➔ Member States must ensure that operators retain necessary data for between 6 months and 2 years, being able to:
  - ➔ trace and identify the source of a communication
  - ➔ trace and identify the destination of a communication
  - ➔ identify the date, time and duration of a communication
  - ➔ identify the type of communication
  - ➔ identify the communication device
  - ➔ identify the location of mobile communication equipment.

# Data Retention: Situation Analysis

- Highly Visible Programs
- Massive Data Volumes
- Complex Converged Services
- Mobility & Next Generation Networks
- Consolidating Multifarious Target Identities
- Cost Recovery

# Data Retention: An Evolving Challenge

- Dramatically increasing volumes of traffic
- IP-based services
- 'Free' Services
- Sophisticated targets
- Nomadic targets
- Comparison with historic PSTN capabilities

# Data Retention: Challenges for Operators

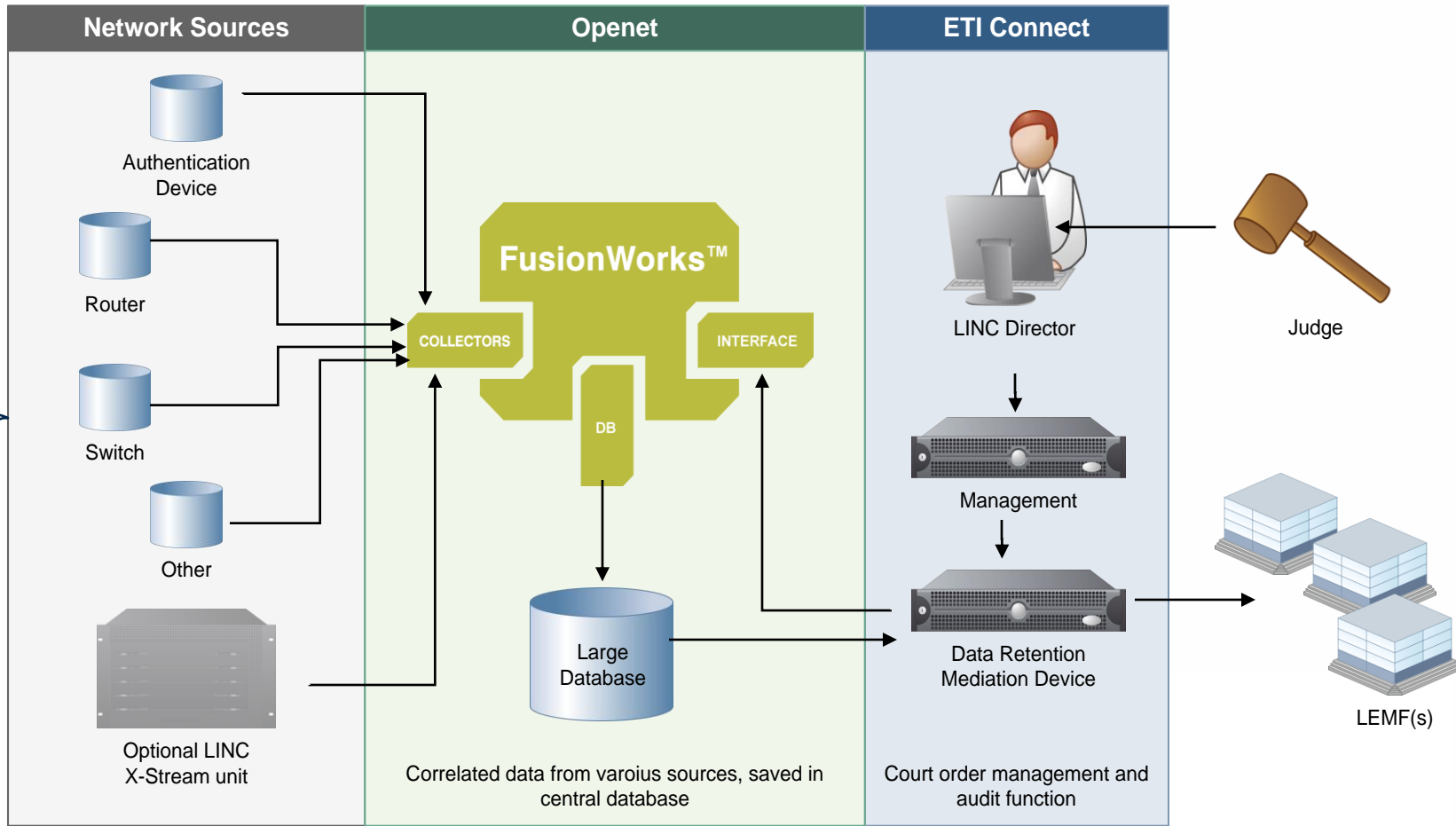
- ➔ Transform diverse network traffic into a useful record:
  - ➔ Support multiple networks – wireline, broadband IP, wireless, etc.
  - ➔ Collect from multiple data sources
  - ➔ Quickly identify and capture ‘target’ traffic
- ➔ Manage Data Retention initiatives cost-effectively
- ➔ Minimize impacts on day-to-day network operations
- ➔ Manage and authorize warrants in a timely manner
- ➔ Incorporate secure handover of information to the LEA

# Data Retention Challenge: Volume & Complexity of Traffic

- ➔ Difficult to compile user transaction data for all activities and all services
- ➔ IP traffic generates at least an order of magnitude more records than Circuit Switched voice traffic
  - ➔ 100's of records
  - ➔ Out of sequence & Partial
  - ➔ Identifiers per device are different
- ➔ Struggle to filter data on individuals for LEA Warrants
  - ➔ Pure sources of data are required for integrity of the information provided
  - ➔ Challenge to correlate the identifiers associated with an individual's traffic across multiple wire-line and wireless phone numbers, e-mail addresses, SIP addresses, MAC addresses, etc.

**Provides a single unified view of each individual's data and voice traffic**

# Data Retention: Openet Solution Architecture





# Data Retention: Conclusion

- Solution Requirements
  - Compliance - Meet & exceed current regulations
    - Supports complex target identification
    - Support for multiple parallel formats
  - Capability - Collect, correlate, retain & retrieve
    - Support for all network and service types
    - Enables sophisticated correlation of data
    - Enables high performance with exponentially increasing data volumes
    - Provides ability to aggregate and store data more cost effectively

**Thank You**

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# Openet Data Retention Solution

- Incorporates comprehensive data collection, correlation, and enrichment capabilities
- Supports Data Retention for Circuit Switch & Packet Switch networks & service elements
- High performance volumes and low latency
- Scales horizontally and vertically
- Highly available
- Excellent price/performance
- Supports next generation architectures (IMS, TISpan, PacketCable, etc)
- Supports network probes with application layer information, likely to be required in future regulations:
  - E-mail not provided by CSPs (e.g., webmail, other email, etc.)
  - Internet Telephony (e.g., non-carrier grade VoIP)
  - Other P2P services
- Provides efficient storage of relevant retained data
- Fully compliant with a variety of international Data Retention standards