

# IP Data Retention

The challenge of IP Data  
Retention to Traditional Approach

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# Summary

- The challenge
- The typical solution
- Retentia's approach
- DRS: the solution for IP data retention
- The company

# Reference Scenario

- International and national regulations set mandatory requirements on transactions to be retained and query response time
- Privacy and security regulations define data protection rules and access criteria
- Enterprises are willing to spend as little as possible on data retention
- Increase in traffic and monitored transactions is pushing the managed data size to the sky

Meeting all these conflicting requirements is a big challenge for system designers and developers

Time is ripe for a dedicated software product

# The IP challenge (size)

- IP data retention is making the task more challenging
- Huge amount of data if compared to traditional phone CDR volumes
- A typical user makes tens of phone calls but might send and receive hundreds of mails and browse thousands of web pages and images

# The IP challenge (flexibility)

- Small differences in legislation from country to country might impact heavily on system requirements
- Changes over time in regulation might impact heavily on the volume of data managed by the system

# The IP challenge (adaptability)

- The type and size of data to be stored and managed is very variable compared to standard telephony CDR
- Telephony CDR are very standard and well defined objects; from their correctness depends the phone bill
- IP CDR may range from IP packets to system logs

# The IP challenge (definition)

- Depending on standard definitions and country regulations, exists a gray area between data retention and interception

10.5.135.12:8600 -> 192.168.1.1:80	Retention
GET www.retentia.com	
GET www.retentia.com/logo.jpg	
 retentia <sup>TM</sup>	Interception

# The “easy” answer

- A system with high data management capability
- Very customizable and scalable
- Able to manage all sorts of data

We need an RDBMS!!!



# What is the price?

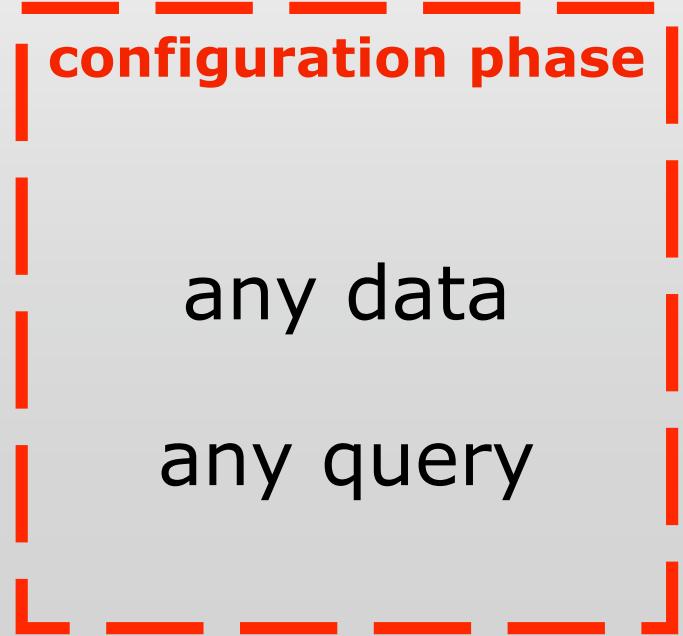


- performance (many CPU)
- storage (many TB)
- licenses
- management
- security

\$\$\$ TCO \$\$\$

# The DRS answer

- Data to be managed is known in advance
- Queries to be run are known in advance



# The DRS answer

- Using, during the system configuration phase, the knowledge on data to be managed and queries to be run in the configuration phase, we can deliver a significantly more efficient system
- Adding more data flows or modifying data formats and queries is simply done, often in minutes, with a new configuration

# The real-life results

- billions of record managed with PC class hardware
- up to 80% storage savings compared to DB
- guaranteed query response time
- total data protection due to proprietary encrypted data file format

# Comparing Costs

	Medium Operator (100 Mill.CDR per day)		Large Operator (10 Bill.CDR per day)	
	Traditional Solution	The Retentia Solution	Traditional Solution	The Retentia Solution
<b>Storage<sup>(1)</sup></b>	<b>3 TB</b>	<b>1.5 TB</b>	<b>300 TB</b>	<b>145 TB</b>
<b>Servers</b>	<b>2 x 12 CPU</b>	<b>4 CPU</b>	<b>16 x 32 CPU</b>	<b>60 CPU</b>
<b>3'rd party Licenses</b>	<b>2 Oracle x 12 CPU</b>	<b>2 Oracle x 2 CPU</b>	<b>16 Oracle x 32 CPU</b>	<b>2 Oracle x 4 CPU</b>
<b>Total Cost of Solution<sup>(2)</sup></b>	<b>\$0.6M - \$1.0M</b>	<b>\$0.1M - \$0.2M</b>	<b>\$15M - \$20M+</b>	<b>\$2M - \$3M</b>

(1) Based on a retention period of 6 months

(2) Excluding LEA Product licenses and integration costs

# The Process Management Challenge

In today Telco/ISP scenario the management and handling of LEA requests is becoming an increasingly complex task

- Enforcement and monitoring of SLA
- Multiple Data Repositories
- Complete control and tracing of data access
- Monitoring of request handling process
- Security of data communication with LEAs
- Reducing operator costs

# The DRS answer

- DRS provides a single access point for all LEA support activities enforcing security and tracking of accesses
- It can manage Data Retention queries as well as provisioning of Legal Interception requests
- DRS provides a centralized monitoring of all process phases
- The web interface can be securely accessed from remote (ideally directly from LEA)
- The process streamlining capability and simplified request input screens can dramatically improve the whole process efficiency
- DRS provides a virtual repository access, masking the complexity of repositories from operators
- Centralized process monitoring and scheduling of requests helps in meeting SLA
- DRS is already handling the HI1 interface

Process management = security + savings

# The complete picture

The **Data Retention Suite** is a complete suite of software products that manages the processing of requests from LEAs using a centralized architecture. The Suite is composed by 3 main products:

## **DRS/wm**

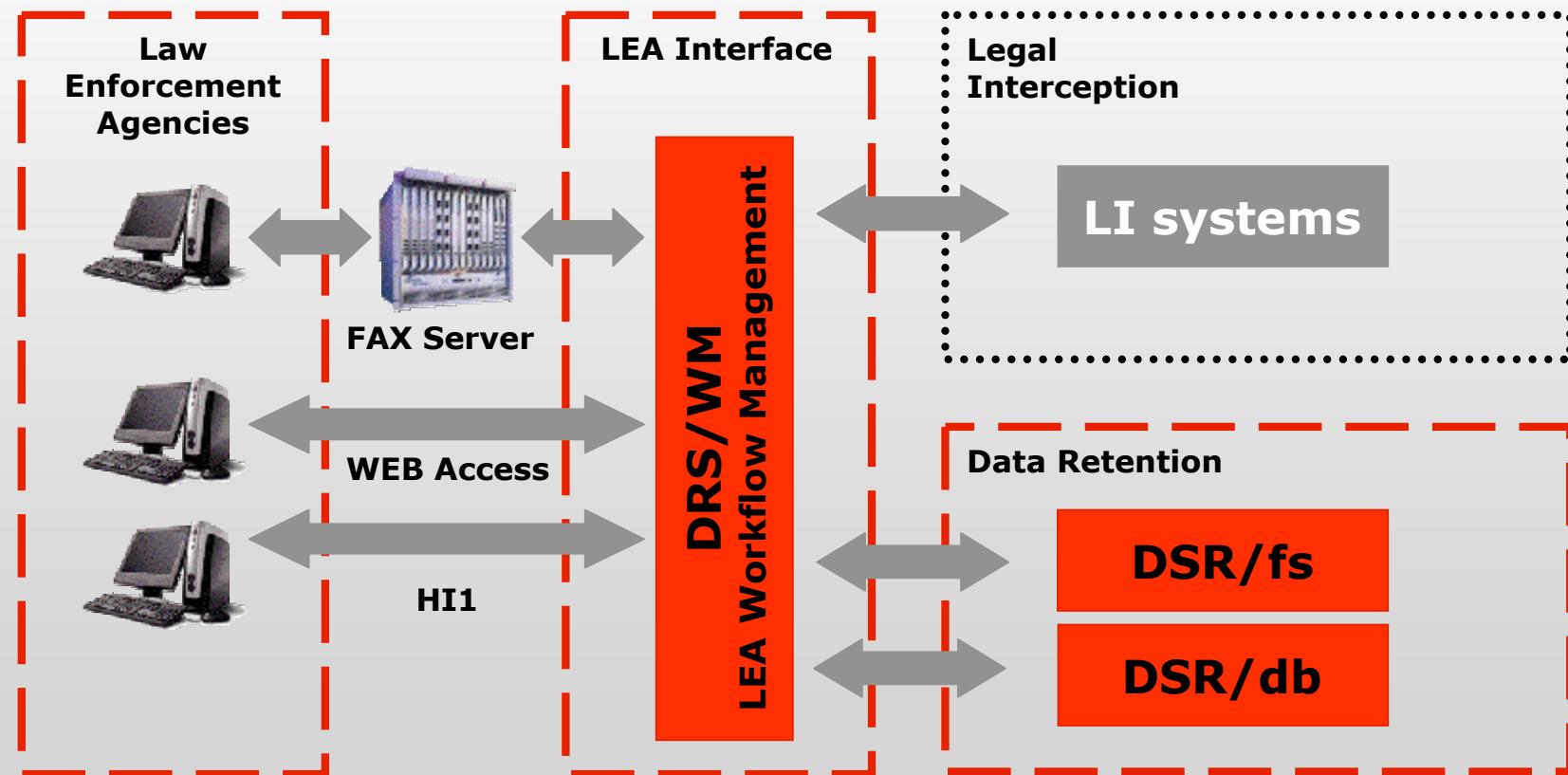
♣ **DRS/wm** (*Workflow Management*) handles all process phases (incoming requests management, services splitting, storage system interface management, multi-repository virtualization, etc)

## **DRS/db and DRS/fs**

♣ Archiving and fast retrieval of traffic stored on Data Base (/db) or File Systems (/fs) based storage architecture in a compressed and encrypted format.

Secure and fast retrieval of traffic data, to support service level agreement. DRS/fs significantly reduce storage dedicated to data retention.

# The complete picture (2)



# DRS: the suite for LEA support

## Configurable

- ❖ Configurable input data interface for multiple data format
- ❖ Configurable normalized internal record format
- ❖ Configurable internal processing routing

## Convergent

- ❖ Data independent

## Scalable

- ❖ Vertical - Multiple instances
- ❖ Horizontal - Multiple platforms

## Secure

- ❖ Encrypted data and requests
- ❖ Encrypted Results
- ❖ Internal tracing of all users activity

# DRS/wm

- Configurable workflow management
- Configurable new LEA service requests
- Third party interception systems integration (API)
- External systems interface integration (API)
- Remote Archives centralized management
- Status control and alarms management
- Web link with LEAs Interception centers
- Multi-operator architecture support (service bureau for TELCO/ISP)
- Secure data/info access (strong authentication, data encryption etc.)
- Web based user interface



# DRS/db

- Voice and IP traffic storage and retrieval
- Storage on DB (compressed format)
- Optimized enquiry
- Acquisition from mediation systems (CDR, IPDR, LOGS, etc.)
- Acquisition from third parties probes (IP/SS7)

## Key Points

- Configurable input data flows
- RDBMS based storage architecture



# DRS/fs

- Voice and IP traffic storage and retrieval
- Storage on indexed, compressed and coded files (proprietary format)
- Optimized indexed file inquiry
- Acquisition from mediation systems (CDR, IPDR, LOGS, etc.)
- Acquisition from third parties probes (IP/SS7)

## Key points

- Configurable input data
- Configurable index keys
- Exceptional data loading and query performance
- Lowest TCO – Storage saving



# DRS References



## Mobile

- ♣ **RFI-GSMR** (*Italian GSM Railway*)
- ♣ **TIM BRASIL** (Brazil: standard TDMA and GSM)

## Wireline

- ♣ **ADRTEL** (*Rome airports Group*)
- ♣ **EUTELIA**

## Triple Play

- ♣ **FASTWEB**
- ♣ **TI Media** (*ISPs - Telecom Italia*)

## Classified Project

- ♣ **Italian DOD**

# About us



- Retentia is the leading brand in data retention management and provides data capture, archiving, and tracing solutions for Telco's, ISP's, Enterprises, and Law Enforcement agencies all over the world.
- Retentia's Data Retention Suite (DRS) enables Telco's and ISP's to assist Law Enforcement Agency's to locate and prosecute suspicious behavior and to comply with federal legislation and directives - faster and for less money than competing solutions.

# About us



- Retentia's portfolio of proven Data Retention products supports the complex scale, security and performance requirements of some of the world's most demanding organizations.
- With its unique specialization, leading-edge technology and top-tier customer base, Retentia qualifies as one of the most dynamic and fastest-growing companies in Homeland Security.
- Retentia is the commercial brand of Systeam Italy Spa, an international company, wholly owned subsidiary of Intelligentias, Inc. (ITLI)
- Retentia is headquartered in Silicon Valley with regional offices in London and Rome.



# Questions