

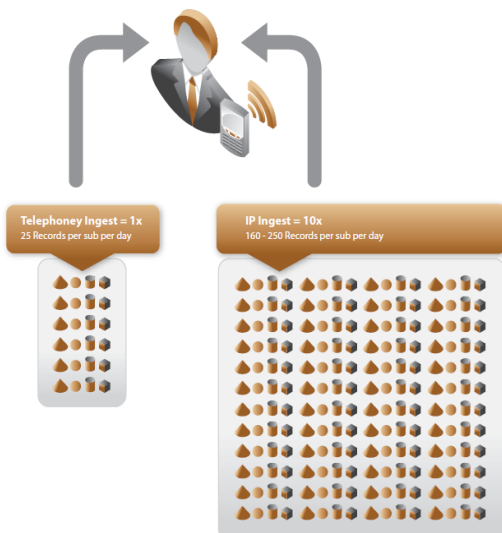
CopperEye for Broadband data – IPRS

As technology has advanced in the last 15 years, the introduction of mobile telephony and broadband has entirely changed the way the people of the world interact – we now live in an entirely different, barrier free, society. As a knock-on effect of this paradigm shift, electronic communications records are becoming one of the key and, frequently, primary tools of crime and, especially, terrorist investigation by legal authorities across the globe.

The States of the EU, and indeed many states worldwide, have begun legislating to enforce Communication Service Providers to maintain all their IP created records to comply with the EU Data Retention Directive (2006/24/EC). In many ways this is a straightforward extension of the existing legislation as it relates to telephony records. The demands on the CSPs for request process control and reporting are, effectively, identical; however, the demands on the underlying technology create a new class of IT challenge.

The daily volume of transactions in the current home PC based internet world is sufficiently high for the retention process itself to become a burden on the business – most service providers will be holding (assuming the minimal retention period of 6 Months) between 10s and 100s of Billions of records; stop and think about those numbers: 100s of Billions! Even a small service provider managing 100,000 subscribers can expect to be retaining, at the very least, over 3 Billion records. The rapid adoption of mobile broadband via Smartphone adoption creates a step change in record creation and retention.

The data capacity demanded by record management is large, but, compared to the loads on, for example, Healthcare Systems storing MRI records, not enormous or technology threatening. What is really frightening to the service owner and the data provider is the number of records that need to be managed – 100s of Billions is a new nomenclature for most.



The existing telephony voice data retention systems have been, typically, based on billing or data warehouse engines supported by RDBMS systems. It is fairly easy to predict their system load and query characteristics – the simple math is that each Subscriber makes 10 calls and creates 10 records a day, with the data accessed from one system. The reality of the data loads on IP broadband record creation is unknown ... it is believed, on the low side, each Broadband user (and many of these are machines and not people) will create 250 records per day – these records may come from, in CopperEye's experience, up to 17 systems. Admittedly, note every telephony user has broadband, but the corollary is that the load on the ip wholesale provider is of another magnitude entirely.

As a final challenge, it is obvious to all that the needs of these systems in terms of data sources (e.g. Social Networking site access), data volumes and the range of reports run against this data will continue to evolve – and

needless to say, won't reduce in volume - ever.

Broadband IP Data Retention – Solution Needs

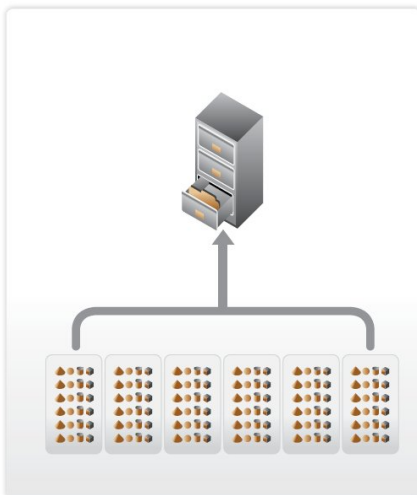
The optimum solution to address the challenges of Broadband IP Data retention will include:

- Data ingest of numerous data formats from numerous sources – telephony systems source their information from one key source – IP data is dispersed and disparate.
- Concurrent data ingest and reporting - when operating in Billions, the option to manage load and reporting as discrete operations is no longer viable – load and query must operate in parallel.
- No change to the business processes supported by the existing telephony application – Data retention, legislated or not, does not add to the revenue goals of any Service Provider, any change to existing processes inherently adds significant cost to Service Provider businesses.
- Open and seamless integration with existing telephony application – leverage investment in, previously implemented, application and infrastructure.
- Integration with existing data. Self evidently, organisations interested in broadband usage, are clearly going to need to correlate their reporting results with the data held by voice-based systems. Ultimately the data structures must be jointly accessible and reports will be run against both data sets concurrently.
- Fast, Transparent, Painless Implementation – deliver the project with minimal staff and management involvement – 20-50 days elapsed time.
- Extensibility and ease of change – as the data ingest and reporting requirements change it must be possible to extend the solution transparently to the user and with minimal cost i.e. no application changes, data extension is driven by data itself.
- Proof – the solution you implement will be managing information loads beyond the boundaries of your existing systems and those of many of your partners and competitors, has the solution been proven well beyond the bounds of the what you are being asked to deliver now? IT systems can be scaled downwards, but they can rarely, if ever, be relied upon to scale upwards in size – there are always multiple gating factors that will need to be addressed.

What is CopperEye IPRS for Broadband data?

IPRS is a package enabling the hyper-volume data management of IP Data to meet the demands of any legislation requiring the retention of Broadband IP Data. Its unique and patented data management technology ingests and manages IP data under the same application and process control that you are currently using for telephony data today – IPRS extends your existing application.

CopperEye IPRS has four key technology areas:



1. Data Ingest

Data loading of the IPRS system is driven through a rugged process engine that integrates tightly with the CopperEye RS Data Management Engine. Data Ingest has been proven in production deployment in the field, to over 1 Trillion records.

2. Data Management

The core of the CopperEye IPRS package is the CopperEye Retention Server (RS) Engine. The patented technology enables a quantum jump in data loading, growth and management – which in technology terms is the leading inhibitor for the hyper-data volumes under management. The RS engine can offer a

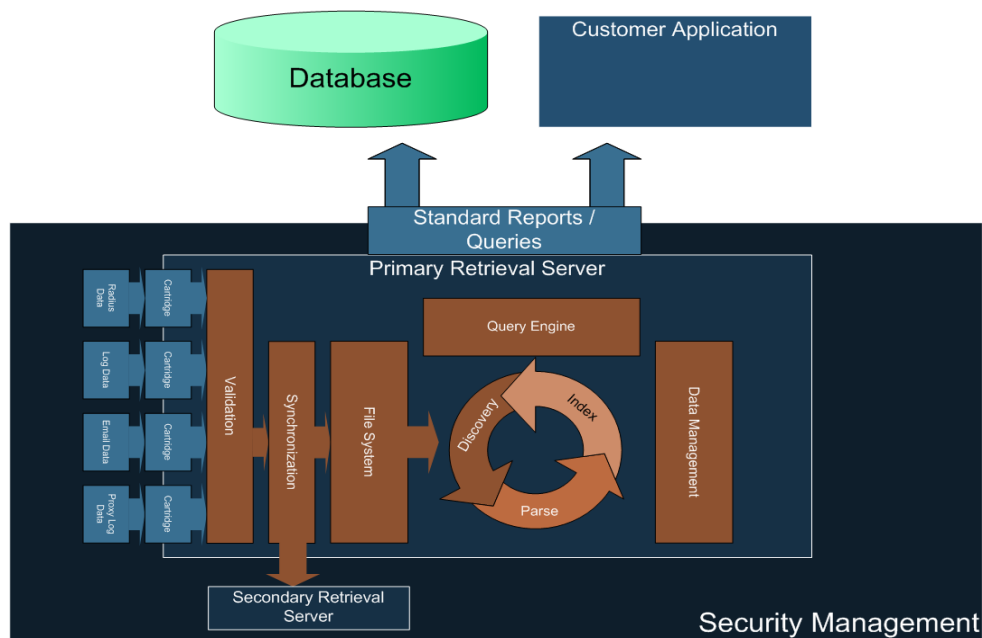
loading performance gain in the order of multiple orders of magnitude faster than RDBMS technology at a fractional cost.

3. Reporting

The CopperEye IPRS package is supplied with SQL queries to supply the following de-facto reports into your existing disclosure workflow:

- Which IP is this user or vice-versa?
- What is the log-on and log-off time?
- Caller and recipient of an ip voice call?
- Email: sender, receiver, time, date and (sometimes) subject line
- URLs of sites visited

These are easily extensible by the, non-IT literate, user to meet additional reporting needs.



4. Application Integration

CopperEye IPRS is designed to utilise an IP based Data Model to integrate, via SQL, directly with existing voice-based telephony retention systems. Access is via a number of industry standard and field hardened APIs and Gateways.

Most current applications supporting telephony record retention are based on RDBMS technology accessed via SQL based retrieval. The CopperEye IPRS solution has been developed to live in parallel with existing systems and utilise the same access methodologies, transparently to the user and application.

Key Benefits of CopperEye IPRS for Broadband Data

- Fastest Route to legislative compliance
- No Change to Applications and Business Processes
- Simple Extensibility of Data Ingest and Data Reporting
- Proven data management beyond the scale of your current demands
- Significantly less Hardware, Software and Administration Cost

CopperEye IPRS for Broadband Data Summary

INDUSTRY CHALLENGES	COPPEREYE IPRS MESSAGING
NEW REQUIREMENT FOR IP/BROADBAND DATA MANAGEMENT	INTEGRATES SEAMLESSLY WITH EXISTING SYSTEMS
EXISTING SYSTEMS ARE VOICE ONLY - SAME WORKFLOW AND BUSINESS LOGIC	NO BUSINESS PROCESS CHANGE FOR WORKFLOW OR REPORTING
HYPER DATA VOLUMES - 10-25X VOICE VOLUMES	SIMPLE EXPANDABILITY OF DATA REPORTING AND DATA SOURCE LOADING
MANY DATA SOURCES - VOICE PRINCIPALLY FROM BILLING ENGINE	ONLY PRACTICAL COST MODEL FOR HYPER VOLUME - 1/50TH THE COST FOR LARGE DATA LOAD
DATA/REPORTING ACCESS UNCLEAR - BUT WILL DEFINITELY EVOLVE	INTEGRATION OF EXISTING VOICE DATA WITH NEW BROADBAND IP DATA STORE
INTEGRATION WITH VOICE DATA ESSENTIAL	FASTEST AND MOST COST EFFECTIVE ROUTE TO SYSTEM DELIVERY AND COMPLIANCE – PLUG AND COMPLY
NO BUDGET FOR NEW SYSTEM - TWO SYSTEMS (1 FOR VOICE AND 1 FOR BROADBAND IP) IS ILLOGICAL	

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