Data Retention Solution – Product Presentation

May 2015

weDO technologies

Before we start …
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1. Purpose & Benefits
2. Solution Architecture
3. Project Approach
4. Main Advantages
5. Why WeDo

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PURPOSE & BENEFITS

PURPOSE

- WeDo is purposing to help Telcos achieve their objectives by providing a state of the art data retention solution to store traffic related data with the purpose of providing the authorities such information in a fast and secure manner.

- Telecommunications (Interception and Access) Amendment (Data Retention) Bill 2014

PURPOSE

- Communication providers must ensure the completeness and integrity of the data they retain. This means that they must have a procedure in place to track all relevant categories of data and to capture all data points within those categories.

- Communication providers must protect the data against accidental or intentional destruction; accidental loss or alteration; unauthorized or unlawful storage; processing, access, disclosure or accession by unauthorized persons.

- At the end of the retention period, the communication provider is obliged to destroy the retained data.

PURPOSE

- Information to be retained:
  - the identity of the subscriber to a service
  - the source and destination of a communication
  - the date, time and duration
  - the type of communication
  - the location of the equipment used

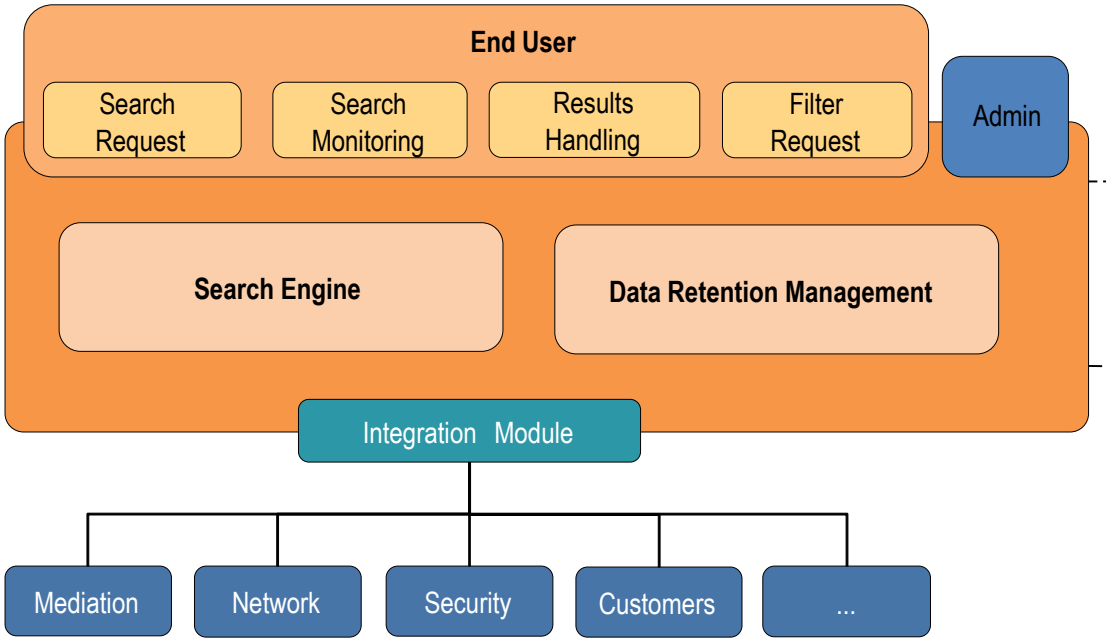
BENEFITS

RAID Data Retention is a solution focused in data storage, search and information retrieval, based on WeDo Framework to support:

- Integration with other systems
  - ✓ Be prepared for quickly adapt in case of network elements or network infrastructure change.
- Large volumes of data
  - ✓ Store billions of records per day of data generated at various sources in the network
- Security requirements
  - ✓ Maintain high security and restrict access to all xDR and customer data to ensure data confidentiality
- Advanced Visualization
  - ✓ Handle hundreds of inquiries by CSP assistants and law enforcement agencies per day

ARCHITECTURE

SOLUTION ARCHITECTURE



User Interfaces

Extensive and Configurable report system

Solution Modules

Fast and efficient search

Seamless Integration

Powerful and simple integration with peripheral systems

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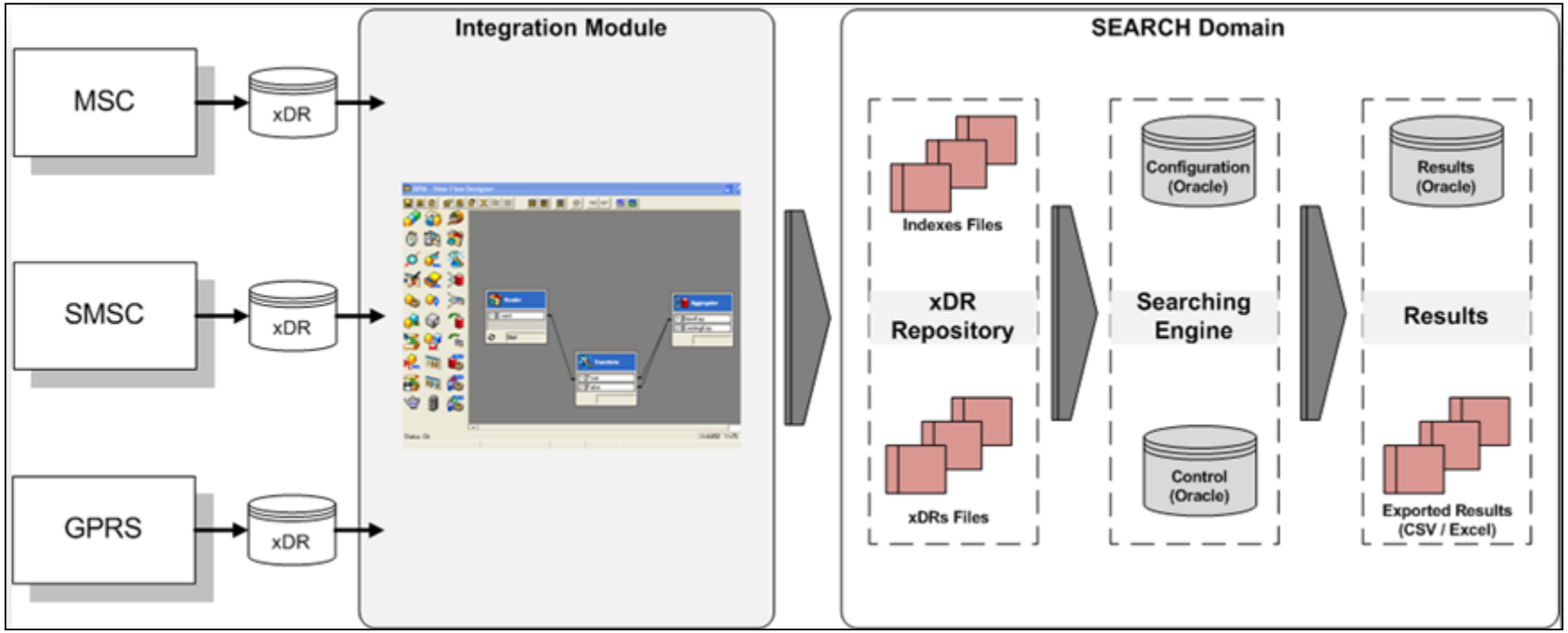
SOLUTION ARCHITECTURE



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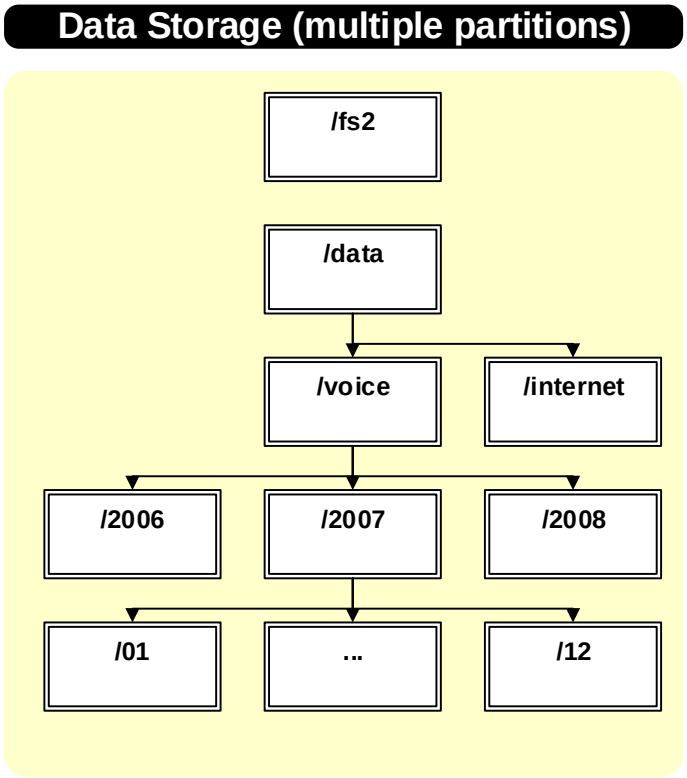
Physical Data Organization

The solution works with two data types:

- **Relational tables**: store control information about data files, searches, results and general configurations.
- **Flat files**: xDR files used by search processes.



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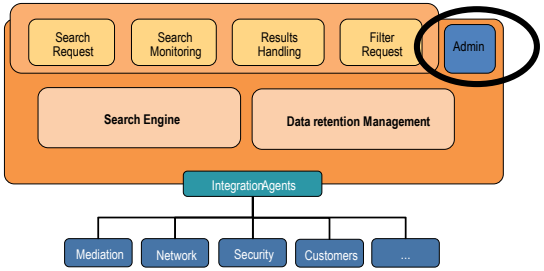
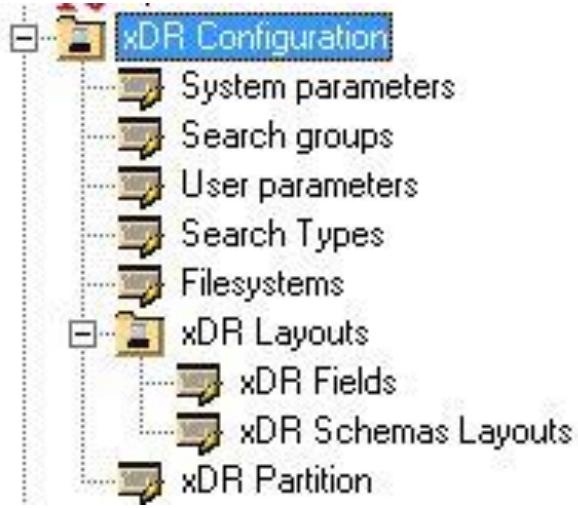
SOLUTION ARCHITECTURE





- Admin area is used to configured search related activities like:
  - Schemas layouts
  - Search Types
  - Search groups
  - User parameters
  - System parameters
  - xDR partitions

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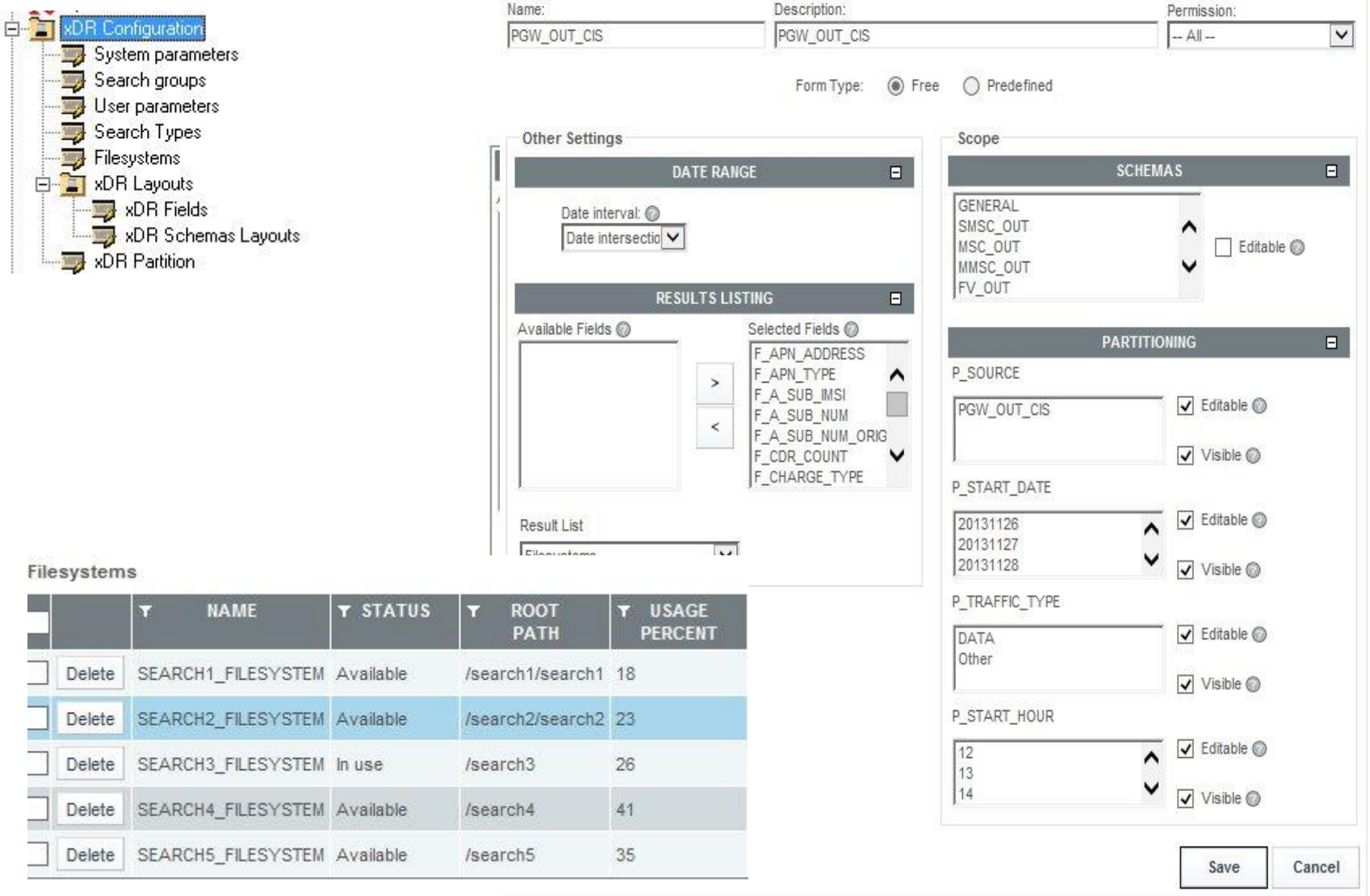
SOLUTION ARCHITECTURE



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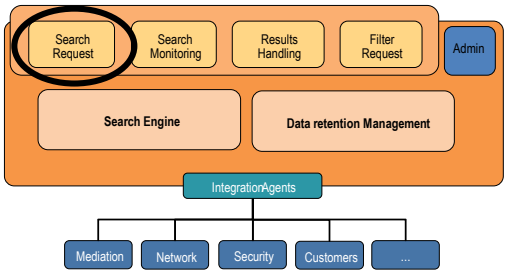
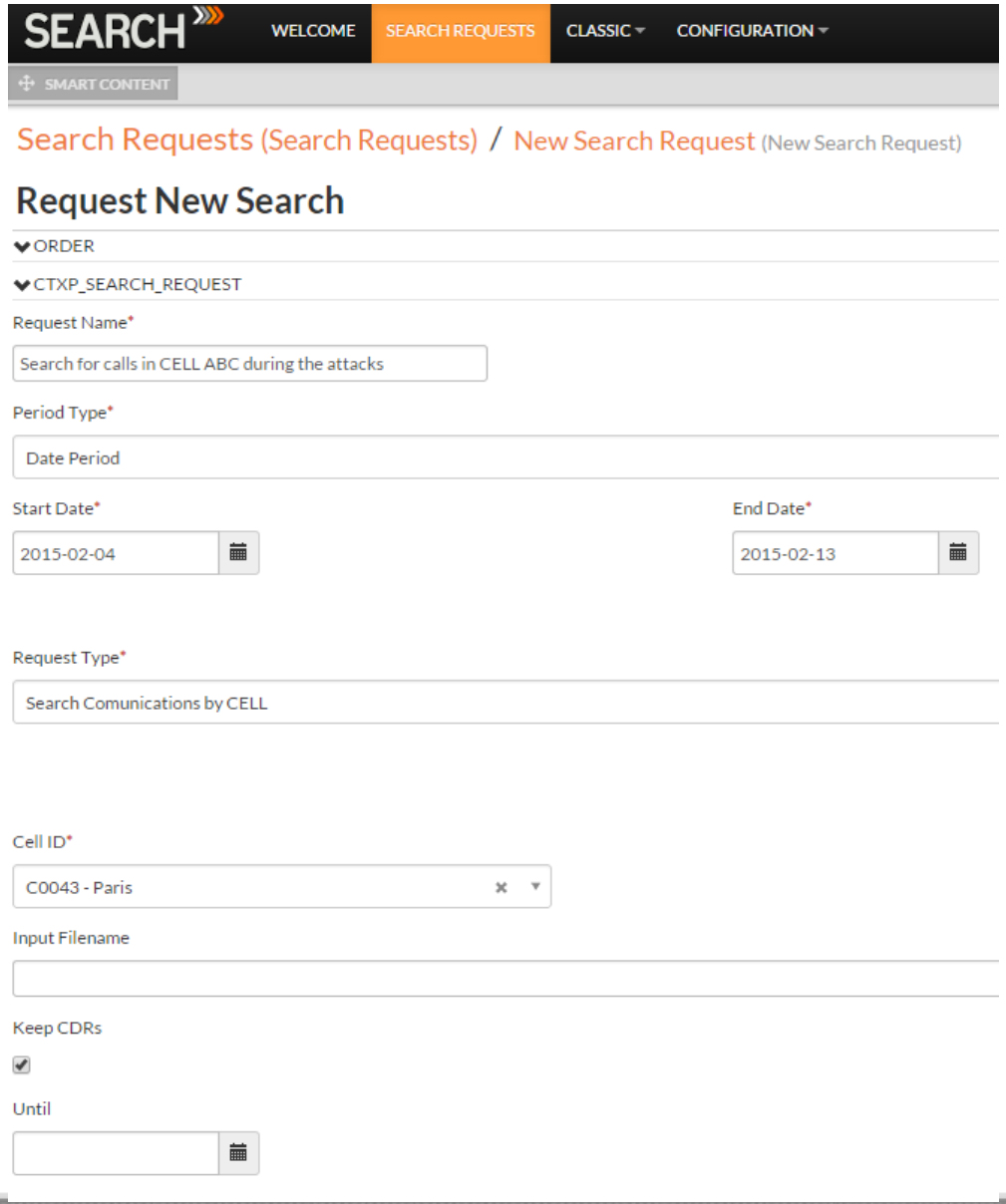
SOLUTION ARCHITECTURE



- Predefined search;
  Free search;
  Search scheduling
- Define a set of criteria values that will be used in the predefined search expression.
- For example:
  - Originated calls from a specific CELL
  - Terminated calls to a set of numbers.



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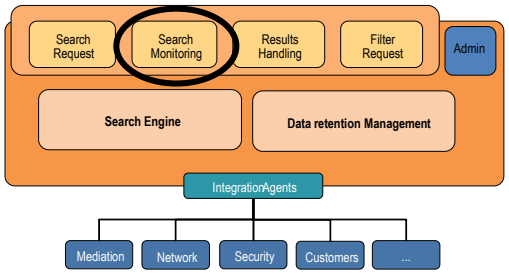
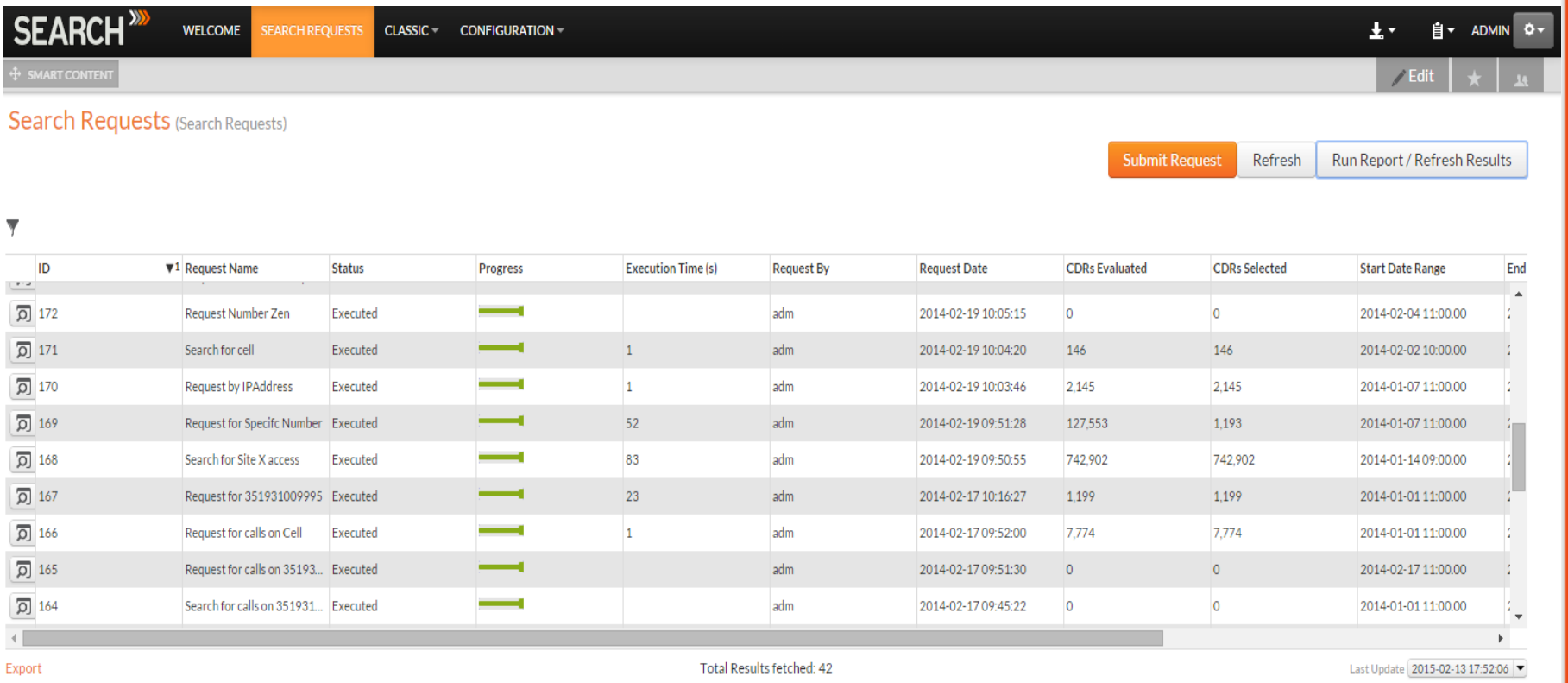
SOLUTION ARCHITECTURE



- Search List allows monitoring searches execution.
- Perform action as *clone, cancel, suspend, resume* and *result view*.



ID	Request Name	Status	Progress	Execution Time (s)	Request By	Request Date	CDRs Evaluated	CDRs Selected	Start Date Range	End
172	Request Number Zen	Executed			adm	2014-02-19 10:05:15	0	0	2014-02-04 11:00.00	
171	Search for cell	Executed		1	adm	2014-02-19 10:04:20	146	146	2014-02-02 10:00.00	
170	Request by IPAddress	Executed		1	adm	2014-02-19 10:03:46	2,145	2,145	2014-01-07 11:00.00	
169	Request for Specifc Number	Executed		52	adm	2014-02-19 09:51:28	127,553	1,193	2014-01-07 11:00.00	
168	Search for Site X access	Executed		83	adm	2014-02-19 09:50:55	742,902	742,902	2014-01-14 09:00.00	
167	Request for 351931009995	Executed		23	adm	2014-02-17 10:16:27	1,199	1,199	2014-01-01 11:00.00	
166	Request for calls on Cell	Executed		1	adm	2014-02-17 09:52:00	7,774	7,774	2014-01-01 11:00.00	
165	Request for calls on 35193...	Executed			adm	2014-02-17 09:51:30	0	0	2014-02-17 11:00.00	
164	Search for calls on 351931...	Executed			adm	2014-02-17 09:45:22	0	0	2014-01-01 11:00.00	

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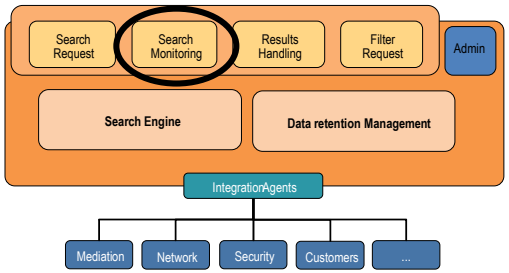
SOLUTION ARCHITECTURE



- Audit Report allows monitoring users activities
- Export capabilities to Excel or CSV format.

ID ▼1	Request Name	Status	Progress	Execution Time (s)	Request By	Request Date	CDRs Evaluated	CDRs Selected	Start Date Range	End Date Range	Search Request Expression
172	Request Numb...	Executed			adm	2014-02-19 10:...	0	0	2014-02-04 11:...	2014-02-04 11:...	((FieldValue(F_A_NUMBER)="+351931008401") OR (FieldValue(F_B_NUMBE...
171	Search for cell	Executed		1	adm	2014-02-19 10:...	146	146	2014-02-02 10:...	2014-02-02 10:...	(FieldValue(F_CELL_ID)="C0021")
170	Request by IPA...	Executed		1	adm	2014-02-19 10:...	2,145	2,145	2014-01-07 11:...	2014-01-07 11:...	(FieldValue(F_CELL_ID)="C0004") AND ((FieldValue(F_A_IP_ADDRESS)="10.2...
169	Request for Spe...	Executed		52	adm	2014-02-19 09:...	127,553	1,193	2014-01-07 11:...	2014-01-09 11:...	(FieldValue(F_A_NUMBER)="+351931009996") OR (FieldValue(F_B_NUMBE...
168	Search for Site...	Executed		83	adm	2014-02-19 09:...	742,902	742,902	2014-01-14 09:...	2014-01-13 11:...	(FieldValue(F_A_IP_ADDRESS)="195.23.12.164") OR (FieldValue(F_B_IP_ADD...
167	Request for 35...	Executed		23	adm	2014-02-17 10:...	1,199	1,199	2014-01-01 11:...	2014-01-05 11:...	(FieldValue(F_A_NUMBER)="+351931009995")
166	Request for call...	Executed		1	adm	2014-02-17 09:...	7,774	7,774	2014-01-01 11:...	2014-01-03 11:...	(FieldValue(F_CELL_ID)="C0013")
165	Request for call...	Executed			adm	2014-02-17 09:...	0	0	2014-02-17 11:...	2014-01-15 11:...	(FieldValue(F_A_NUMBER)="+351931009995")
164	Search for calls...	Executed			adm	2014-02-17 09:...	0	0	2014-01-01 11:...	2014-02-03 11:...	(FieldValue(F_A_NUMBER)="+351931009995")

Export

Total Results fetched: 42

Last Update 20

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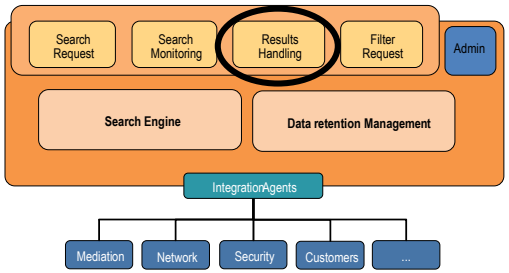
SOLUTION ARCHITECTURE



- Configure the fields to be displayed in the result
- Export to Excel, CSV, PDF
- Send results by email, FTP, WebServices

Search Requests (Search Requests) / Results for Request IP Address (Search Results)

Search Request

Search Request ID 29 Search Request Name Request IP Address Search Request Submit Date 2014-02-19 Search Request CDRs Selected 218,842

Search Request Expression ((FieldValue(F_A_IP_ADDRESS) = "10.228.245.158") OR (FieldValue(F_B_IP_ADDRESS) = "10.228.245.158"))

Results

Filtered by

Search Request ID	CDR Originating MSISDN	CDR Start Timestamp	CDR End Timestamp	CDR Terminating MSISDN	CDR Oiriginating IP Address	CDR Terminating IP Address	CDR Call Duration	CDR Data Size	CDR Service Type	CDR Subscriber Type	CDR Cell ID	Cell Location
29	+351931007...	2014-01-01 ...	2014-01-01 ...		10.228.245.1...	64.4.11.42		98756704	GPRS	POS	C0001	Paris
29	+351931008...	2014-01-01 ...	2014-01-01 ...		10.228.245.1...	195.23.12.164		1464320	GPRS	POS	C0001	Paris
29	+351931007...	2014-01-01 ...	2014-01-01 ...		10.228.245.1...	23.207.86.140		58263968	GPRS	POS	C0001	Paris
29	+351931009...	2014-01-02 ...	2014-01-02 ...		10.228.245.1...	173.194.41.1...		15003520	GPRS	POS	C0001	Paris
29	+351931009...	2014-01-01 ...	2014-01-01 ...		10.228.245.1...	23.207.86.140		73470272	GPRS	POS	C0001	Paris
29	+351931007...	2014-01-01 ...	2014-01-01 ...		10.228.245.1...	173.194.41.1...		63014144	GPRS	POS	C0001	Paris
29	+351931007...	2014-01-02 ...	2014-01-02 ...		10.228.245.1...	23.207.86.140		80798464	GPRS	POS	C0001	Paris
29	+351931009...	2014-01-01 ...	2014-01-01 ...		10.228.245.1...	195.23.12.164		65129984	GPRS	POS	C0001	Paris
29	+351931007...	2014-01-01 ...	2014-01-01 ...		10.228.245.1...	195.23.12.164		70448864	GPRS	POS	C0001	Paris
29	+351931008...	2014-01-02 ...	2014-01-02 ...		10.228.245.1...	23.207.86.140		96770112	GPRS	POS	C0001	Paris
29	+351931009...	2014-01-01 ...	2014-01-01 ...		10.228.245.1...	195.23.12.164		129556416	GPRS	POS	C0001	Paris
29	+351931008...	2014-01-02 ...	2014-01-02 ...		10.228.245.1...	173.194.41.1...		112212128	GPRS	POS	C0001	Paris
29	+351931007...	2014-01-01 ...	2014-01-01 ...		10.228.245.1...	173.194.41.1...		114825632	GPRS	POS	C0001	Paris

Export Total Results fetched: 48 Last Update 2015-02-13 18:10:40

Map

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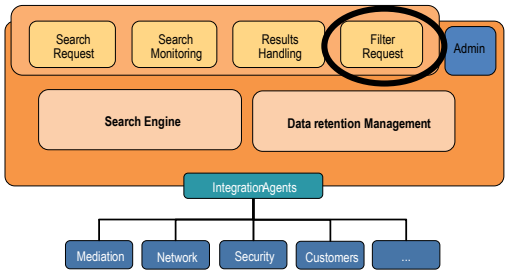
SOLUTION ARCHITECTURE



- Filter feature allow the extension of the retention period for a set of entities (e.g. A_NUMBER=0414240147 is under investigation)
- In the same way as when performing searches users are able to mark some entities as being in a watch list and disable their removal when retention period terminates
- The list of marked entities are available in specific portal area

Search: My Filters

	FILTER ID	FILTER TYPE NAME	FILTER NAME	DESCRIPTION	SUBMIT DATE	EXPIRATION DATE	USER ID	AUDIT EXPRESSION	
Clone	1	A_NUMBER Filter	Process #123POR43S	Process #123POR43S	2009-10-30 18:59:58		user1	(A_NUMBER = "351992451245")	Delete
Clone	2	A_NUMBER Filter	Process #632PERY43S	Process #632PERY43S	2009-10-30 19:00:50	2010-12-25	user1	(A_NUMBER = "351992451245")	Delete
Clone	3	Free Filter	Process #7E48FZX23S	Process #632PERY43S	2009-10-30 19:02:21		user1	FieldValue(A_NUMBER) = "3519325523675" OR FieldValue(B_NUMBER) = "3519325523675" OR FieldValue(C_NUMBER) = "3519325523675"	Delete

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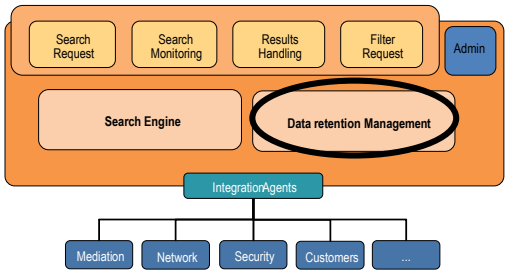
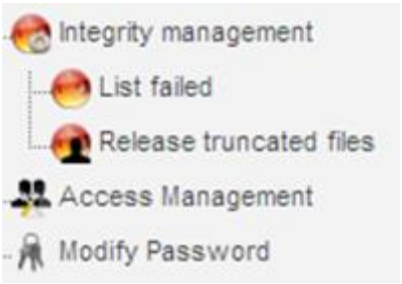
SOLUTION ARCHITECTURE



- Search is able to store all repository data in an encrypted format.
- Can be combined with xDR compression
- File integrity is ensured using
  - File Integrity Validation
  - “Untrusted” files management



File Type	File ID	Field ID	Last Check	Status ID	Status		
SCH	1.246		2009-10-26 17:23:41	ADI014	File integrity check failed	Accept	Truncate
SCH	1.205		2009-10-26 17:23:43	ADI014	File integrity check failed	Accept	Truncate
SCH	1.214		2009-10-26 17:23:44	ADI014	File integrity check failed	Accept	Truncate
SCH	1.217		2009-10-26 17:23:44	ADI014	File integrity check failed	Accept	Truncate

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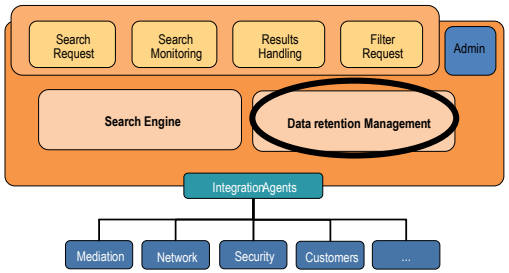
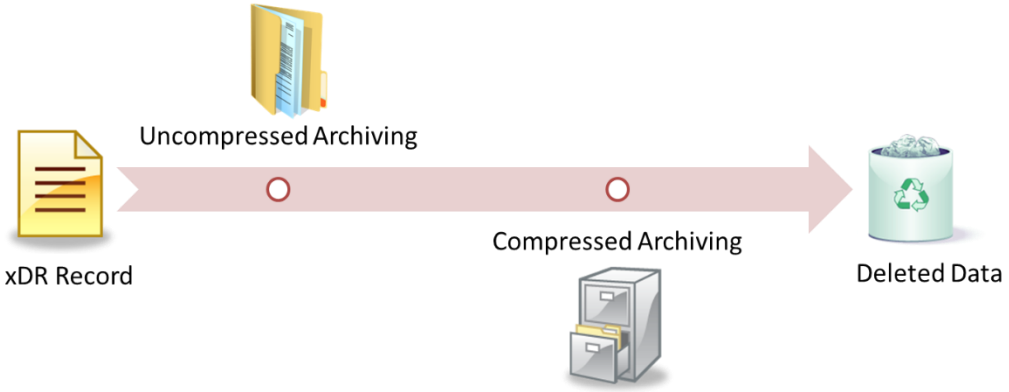
SOLUTION ARCHITECTURE





- Perform the automatic housekeeping process, such as:
  - Remove older xDR files, according to the configured retention time.
  - Remove indexes files that have been excluded by the administrator through the interface.
  - Compress and decompress xDR files.
  - Remove searches results.
  - Send notifications referring to searches results removal.

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SOLUTION SECURITY

Topic	Description
Session Management	WeDo data retention solution manages the user sessions and its own application session, allowing the existence of several simultaneous sessions. This service provides not only the creation of request execution sessions but also validates the access of each of the requests.
Access Management	WeDo data retention solution allows the management and control of users' access. The user is clearly identified by username and password, validating in turn the execution privileges for the system operations. This way, any time a request is received by the server, the access manager is validated. WeDo data retention solution implements its own access management policies, allows a great flexibility at the user profile level for each system area, considering a profile to be a set of permissions and each operation requiring a set of permissions
Security Issues	Security aspects are one of the focuses of this solution due to their importance and criticality. This concern with security is dealt with globally and includes elements related to network, systems, application and processes. The systems and network security is the base of all security policy to implement under this solution. It is essential to ensure the systems integrity and also of the network in which the application platform is based. Once the security at platforms and network level is ensured, it is necessary to make sure that at the application level there are no common passwords or password sharing among users.
Configuration and Management access restriction	WeDo data retention solution allows users' profiles definition, and only the "administrator" profile is allowed to configure and map the processes.
Access Audit	Notwithstanding the preventive measures taken during and after the solution implementation in what security is concerned, it is also essential to ensure audit mechanisms once the system is productive. In this sense the solution creates audit. In these records the relevant data about the performed or attempted operation will be recorded, as well as the user, relevant operations values and session data. From these records it will be possible to detect abusive use situations and attempts to perform forbidden operations. The proposed solution allows the definition of rules according to the operation, amounts involved, users, profiles and criticality levels.
Logging	WeDo data retention solution keeps tracking of its processes and actions through logging capabilities. Each data retention solution application component creates log files where it writes its actions, depending on the log level specified during installation (or reconfigured). A production server should have its log level configured to NORMAL level which allows simples tracing/log messages to be written (e.g. indicating that the applications are alive) and important error messages.
Data Access Control	WeDo data retention solution allows restricting data access according user permission through the "Search Type" facility. Using this facility, the administrator defines which type of data (schemas and partitioning fields) will be available to the end-user when requesting a specific query, based on a previously created template.

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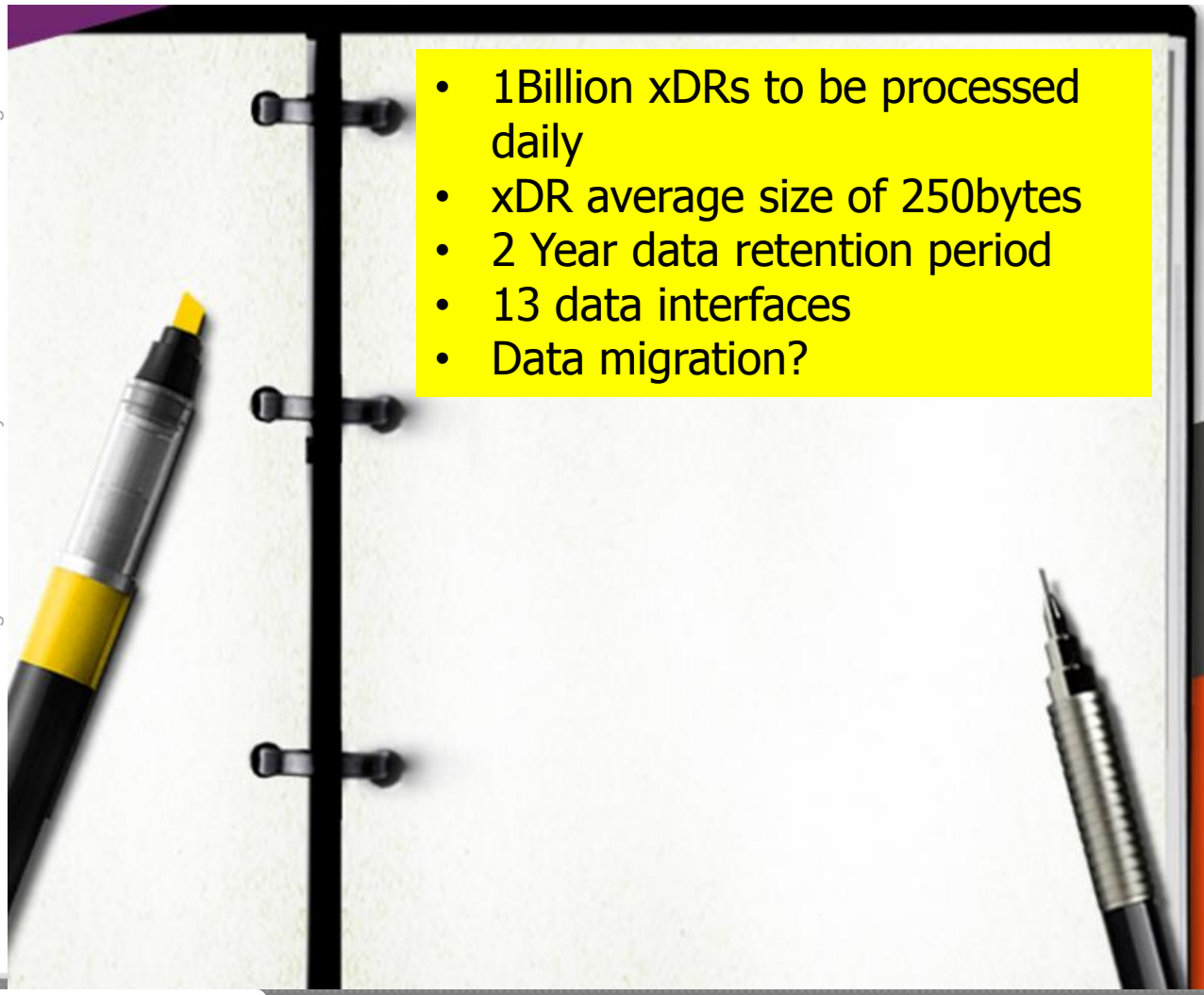
PROJECT APPROACH

PROJECT APPROACH



- 1Billion xDRs to be processed daily
- xDR average size of 250bytes
- 2 Year data retention period
- 13 data interfaces
- Data migration?

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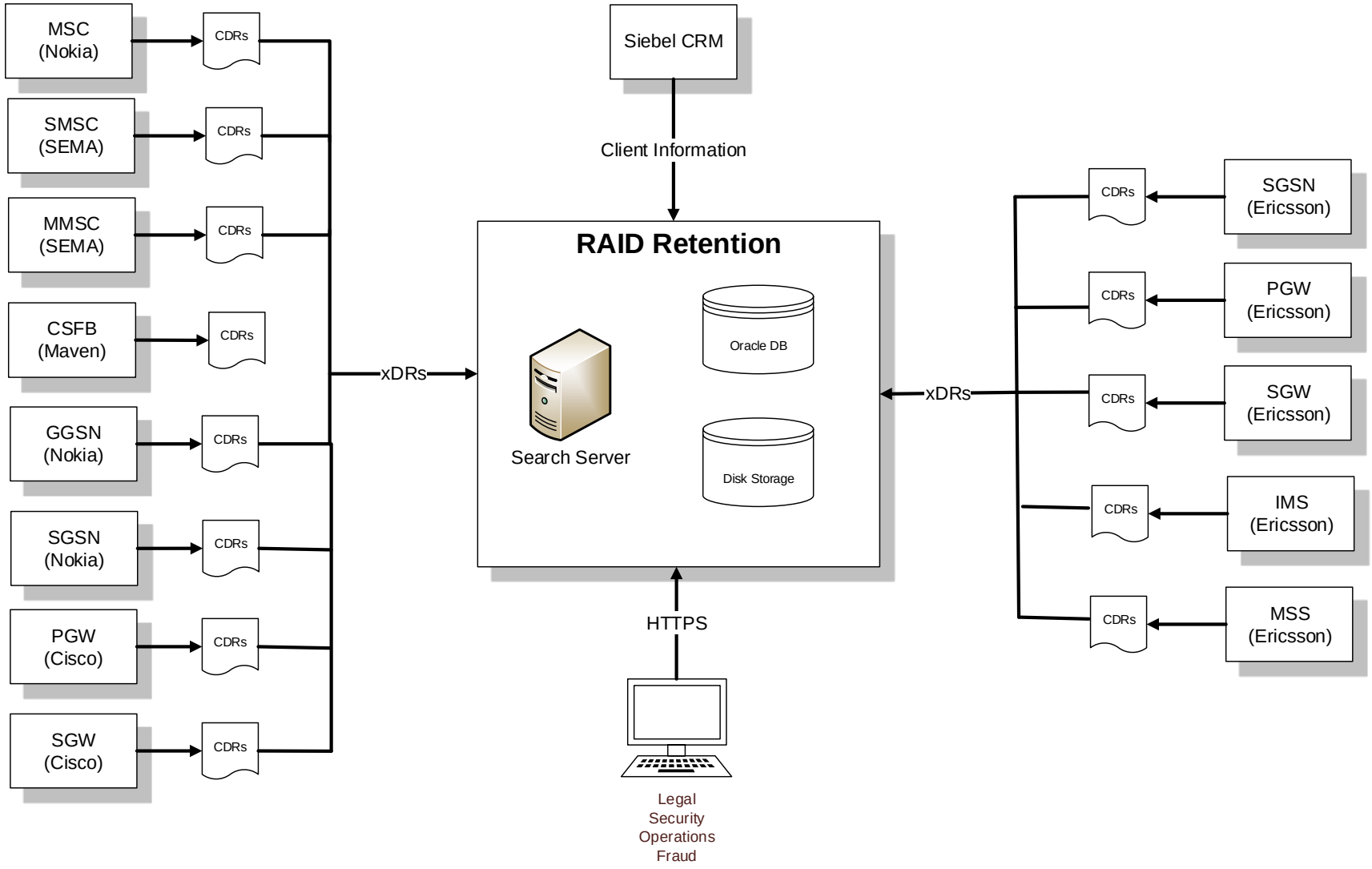
PROJECT APPROACH



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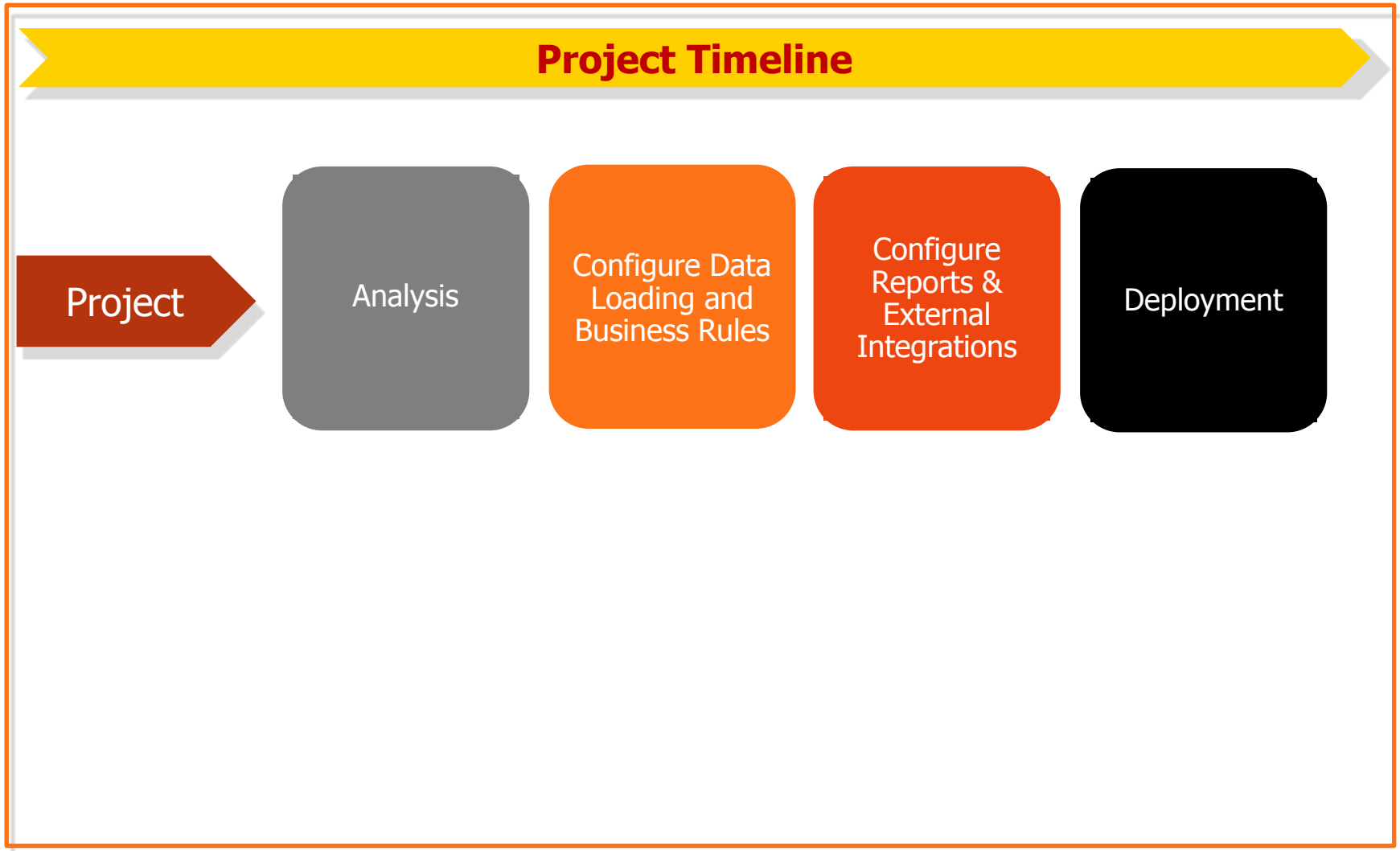
PROJECT APPROACH



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Main Advantages

MAIN ADVANTAGES

High Performance & Capacity

The system can ingest several billion data records per day, supporting the transaction rates generated by large telecommunications networks with millions of subscribers.
Better throughput for search request processing due to:

- the allocation of several processes for a single search request (parallel processing);
- multiple execution queues.

Seamless Integration

The system has been designed for seamless integration into existing multi-vendor and multi-service networks.
Supports multiple integration channels: ftp, webservice, remote database connection, …

Strong Security

Comprehensive security features like role-based access control, and integrity checks prevent unauthorized access and manipulation of sensitive data during storage and handover.

Cost-efficient

Lower demand for disk space because it uses flat files to archive xDRs, compared to solutions that use Oracle data base. A typical reduction of 4:1.

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RAID Retention vs Data Warehouse

Near real time response

Faster answer to internal and external requests

Control Mechanisms

Availability of several mechanisms to continuously and adequately optimize the solution resources and improve search performance

Security

SoX compliance allows the operator to have full knowledge of all the accesses to the tool

Storage capability

Ability to store data related with a longer period of time then DW solutions

Higher IT independency

WHY WEDO?

WHY WEDO?

- WeDo is the worldwide leader of Business Assurance vendors in the market with the **most impressive track record of successful implementations**;
- A **solid and financially healthy company** with a **history of sustained growth** since its inception, consistently growing in number of system implementations and customer base, and **continuous evolution of the product in accordance with market trends and customer requirements;**
- **WeDo was highly involved in the Technical design** of the interfaces between opco's and judicial entities (ITIJ)
- We have **highly qualified and experienced resources** that can leverage previous experience to help Customers to mitigate project risks through the early identification of the potential peaks and troughs of the project;
- **Extensive experience** in developing Data retention solutions **to cope with the client's specific business, technical and environmental needs;**
- A **functionally, technically proven solution** with similar data retention requirements implementations;

THANK YOU!

ARE THERE ANY QUESTIONS?

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