

Septier Communication Ltd.

Dual Usage Strategy of Lawful Interception Systems

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A graphic featuring a woman smiling on a mobile phone, with a blue wave-like shape behind her. The text 'Unveiling the network potential' is written in a serif font over the image.

*Unveiling
the network
potential*

Get to the source. Capture more.

Lawful Interception

The interception of telecommunications by Law Enforcement Agencies (LEA's) and intelligence services, in accordance with local law and after following due process and receiving proper authorization from competent authorities.

About Septier

- Founded in 2000
- Privately owned
- Develops advanced Telecom and IP solutions
- More than 40 customers around the world



- Technology & oem partnerships with:



Legislation Forces Communication Service Providers (CSPs) to Act

- **Dozens of countries around the world have legislated lawful interception and intelligence gathering**
- **Communications services providers must comply with local laws and regulations in order to get and maintain their licenses**

The Results

- **Heavy investments are carried out by CSPs and LEAs**
 - Systems procurement and installation
 - Systems maintenance

Economical Challenges

- ☞ **Extract more security out of LI budgets**
 - LEAs
- ☞ **Recuperate the cost of Lawful interception**
 - CSPs
- ☞ **Maintain LI systems in a high level of service and operations status**
 - CSPs
 - LEAs

What Can Be Done?

- **Adopt a “dual usage” strategy whenever possible**
 - Combine lawful interception with commercial systems
 - Share investments between LEAs & CSPs
 - Generate additional revenues for the CSP
 - Save costs for the CSP
 - Without scarifying performance and security
 - While fully complying with local laws and regulations

Dual Usage Systems for Cellular Operators

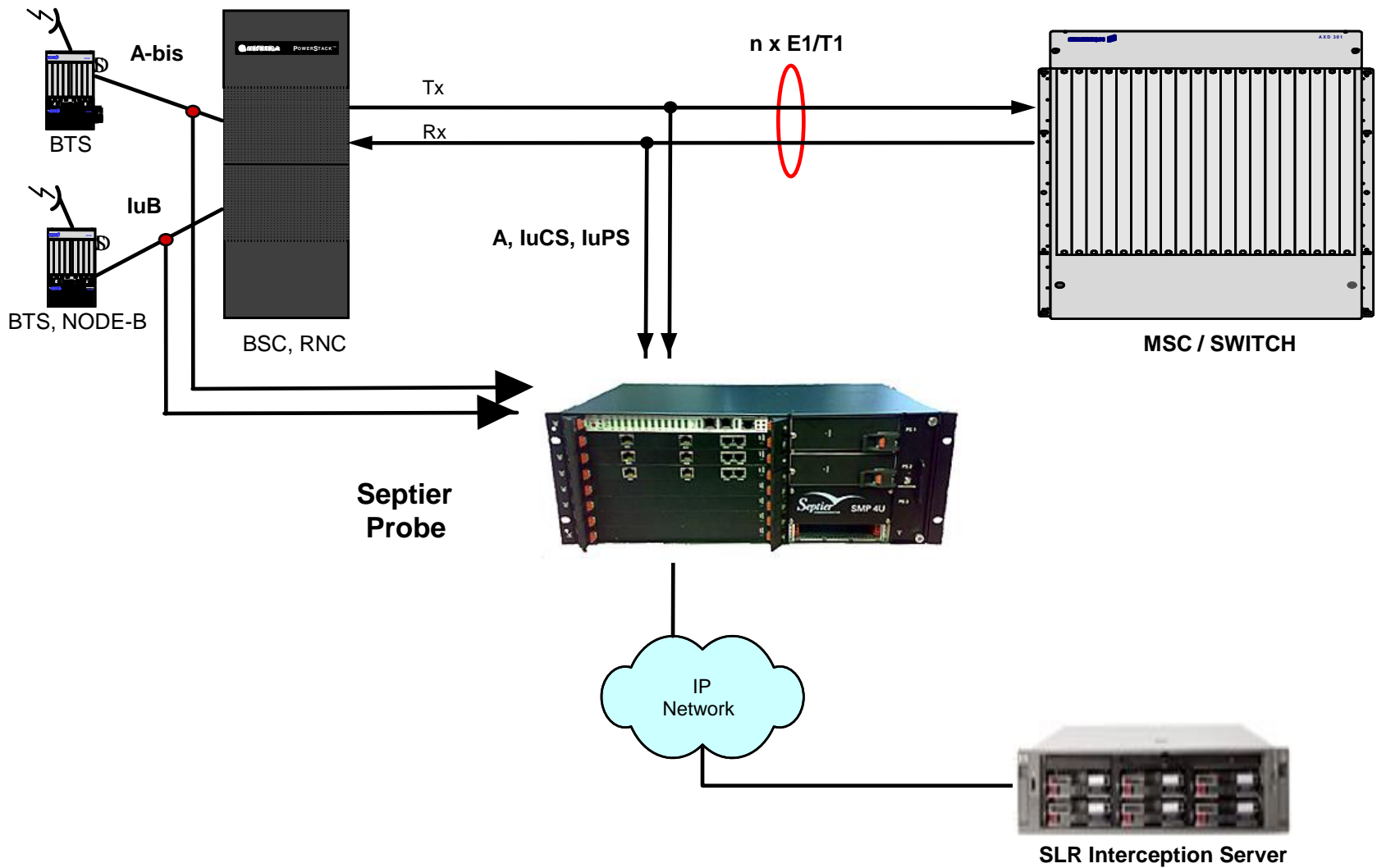
☛ Active systems

- Lawful interception Mediation & Positioning (LBS) systems

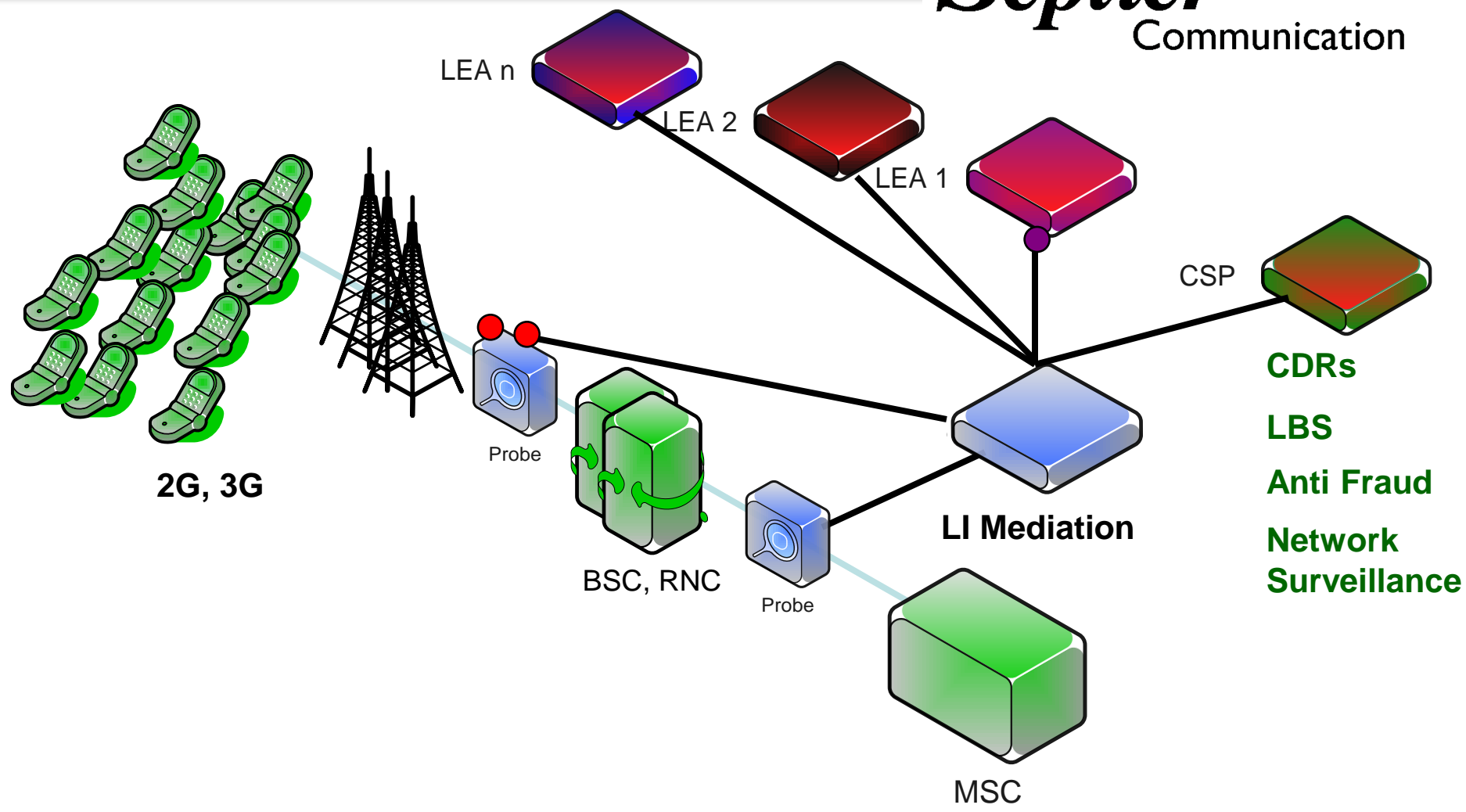
☛ Passive systems

- Lawful interception Mediation & Positioning (LBS) systems
- Lawful interception Mediation & Anti Fraud
- Lawful interception Mediation & CDR generation and data retention
- Lawful interception Mediation & Network surveillance
- Lawful interception Mediation & Revenue assurance solutions

Architecture



Passive Interception



Get to the source. Capture more.

Dual Usage Systems for Internet Service Providers

Passive systems

- Lawful interception Mediation & Gray VoIP detection
- Lawful interception Mediation & CDR generation and data retention (VoIP)
- Lawful interception Mediation & Network surveillance

Septier Technology – The Basis for Dual Usage systems



- ☞ **Telecom Signaling (HW & SW)**
 - Passive (monitoring)
 - Active (influencing)
- ☞ **Real time Databases** (ten's of thousands of insertions per second)
- ☞ **Real time Rule based engine**
- ☞ **Voice and IP Interception**
 - With deep packet inspection

Septier Products



Septier SLR

GMLC

Monitoring Center

Anti Fraud Management

MPC

Mediation

Network Monitoring

SLC

Intelligence Gathering

Call Completion

Assisted GPS

Data Retention

Roaming Solutions

Passive Location

Data Mining

XDR Generation

Positioning

Interception

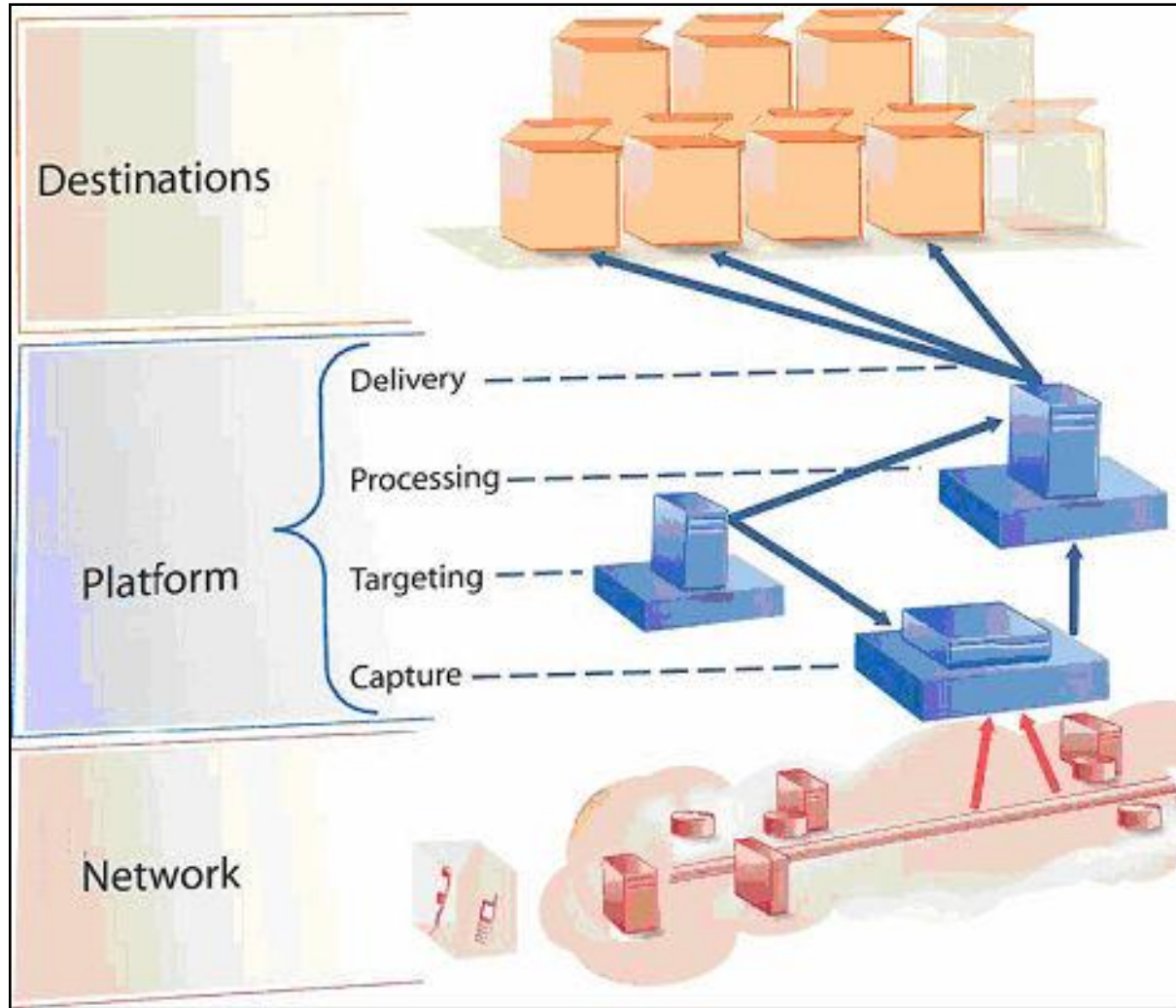
Services

- ☛ **Lawful Interception & Intelligence gathering**
 - Active mediation
 - Passive interception
 - Data retention
 - Location tracking
- ☛ **Cellular location solutions**
 - Passive Cell ID
 - Active GMLC
 - Assisted GPS
- ☛ **Fraud Management**
 - Real time & offline
- ☛ **Real Time CDR Generation**
- ☛ **Network Management & Surveillance**
 - Link trace, Call trace, Counters, Statistics, Reports

Septier LI Products

- ☞ **LI Explorer (Back end & Front end)**
 - TDM (GSM, UMTS, CDMA, PSTN)
 - IP (Internet, VoIP)
 - Active & Passive
- ☞ **LI Explorer (Mediation)**
- ☞ **LI Explorer CDM**
 - Call data retention, mining & reporting
- ☞ **LI Explorer (Front End only)**
 - CDR generation for data retention

Active/Passive Interception Flow



Voice Interception Result

LI Explorer Ver. 3.001 (jlewin@LIMS) [Army]

Warrant Management Case Management All Sessions DWL Management Reports

Refresh Copy Move Export FTP

Cases

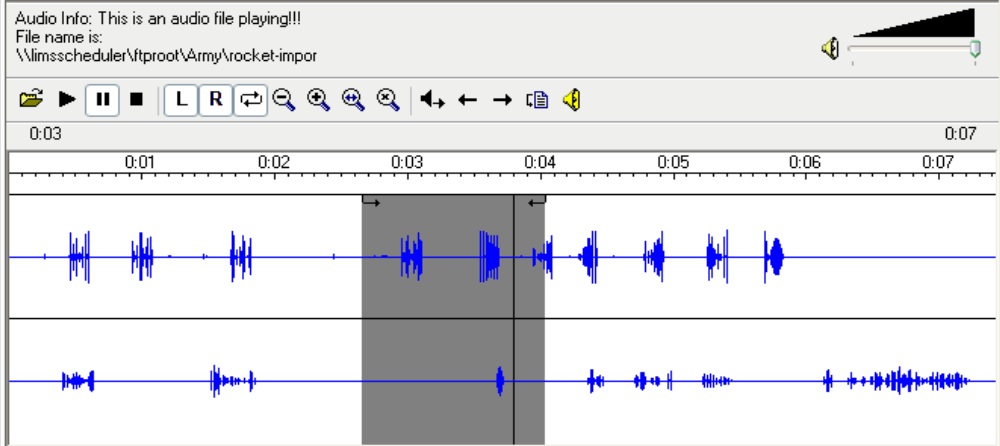
- testing another case
- rocket-importers
- rocket launchers
- LightArms Case

	Release Reason	Dialled DTMF	File_Name
19-Oct-06 11:36:13	0	012345678	\\Army\rocket-importers\
19-Oct-06 11:36:13	0	9	\\Army\rocket-importers\
19-Oct-06 11:36:36	0		\\Army\rocket-importers\
19-Oct-06 11:37:59	0	4	\\Army\rocket-importers\
		0545391166#	
		#	
		2	
19-Oct-06 11:54:45	0	012345678	\\Army\rocket-importers\
19-Oct-06 11:54:45	0	9	\\Army\rocket-importers\
19-Oct-06 11:55:08	0		\\Army\rocket-importers\

Case comment Warrant comment Session comment Voice Player

Audio Info: This is an audio file playing!!!
File name is: \\limsscheduler\l\proot\Army\rocket-importers\

0:03 0:07



Dial Time : 19-Oct-06 11:36:05
Connection Time : 19-Oct-06 11:36:05
Ring Duration (sec) : 0
Release Time : 19-Oct-06 11:36:13
Release Reason : 0
Dialled DTMF : 9

Data for session: DM-13430
Dialled DTMF : 012345678
File_Name : \\Army\rocket-importers

Cellular Positioning

- Comprehensive cellular phones location infrastructure
- Supporting GSM, UMTS, CDMA and iDEN networks & standards
- Hybrid configurations of active, passive and assisted GPS

Description

- Active GMLC
 - Supporting GSM timing advance (TA), UMTS RTT, CDAM delay
- Passive and massive location
 - A, A-bis, luCS, luPS, luB, IOS, NOIS
- Assisted GPS (SUPL & IS-881)
- Mediation for LBS applications

Features

- Telephone (CDMA & UMTS)



ERICSSON



NORTEL

- Cellcom (GSM & UMTS)



ERICSSON



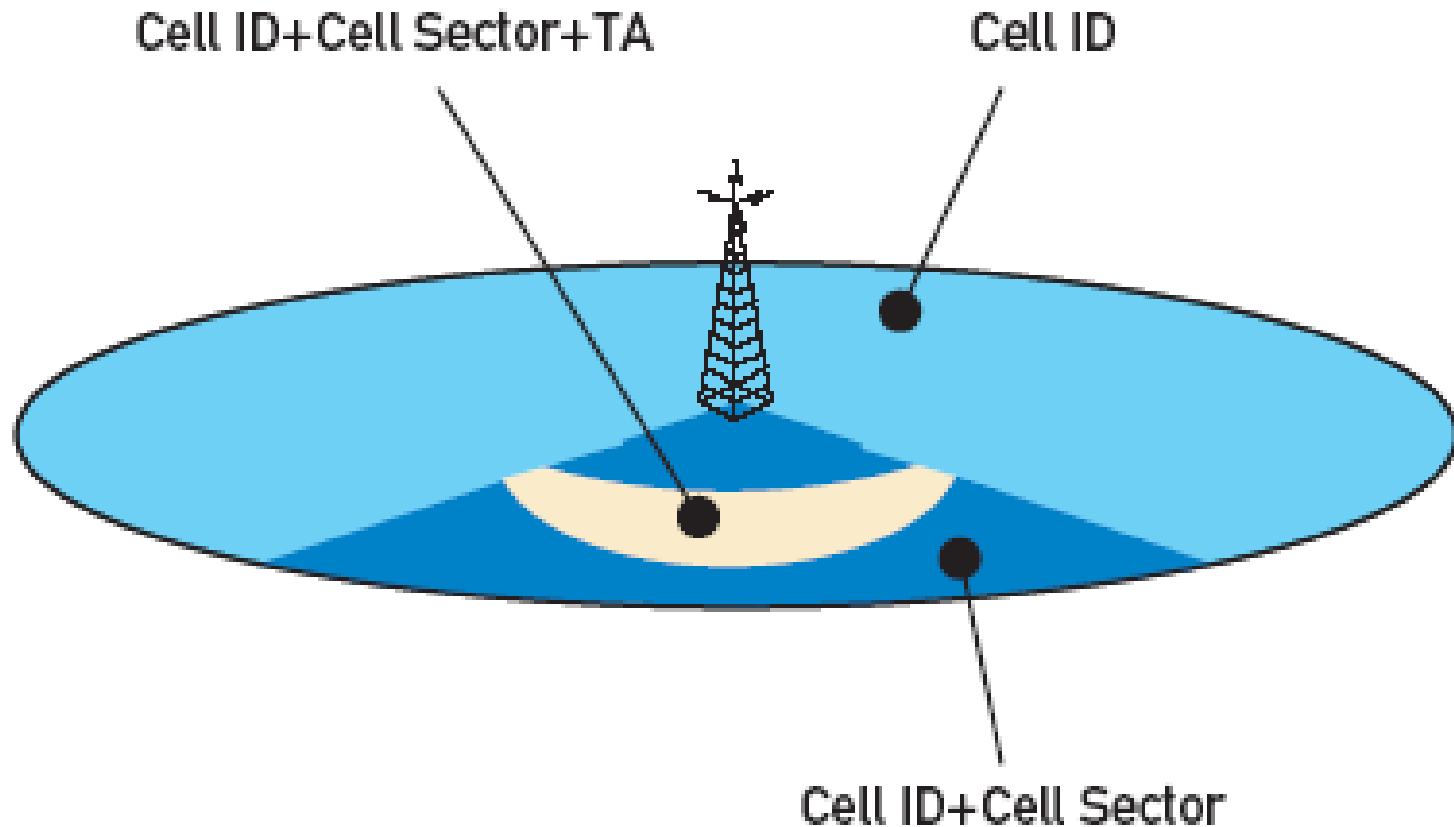
NOKIA

Case study

- Increase ARPU
- Launch new services and applications
- Comply with LI laws and regulations

Benefits

MPC, GMLC & Passive Probes



Fraud Explorer

- Real time and offline anti fraud system
- For Telecom and NGN operators
- Based on CDRs generated by different sources such as passive probes and network elements

Description

- Real time alerting
- Real time prevention
- Extensive rule based engine
- Combating different fraud types

Features

- MIRS (iDEN)

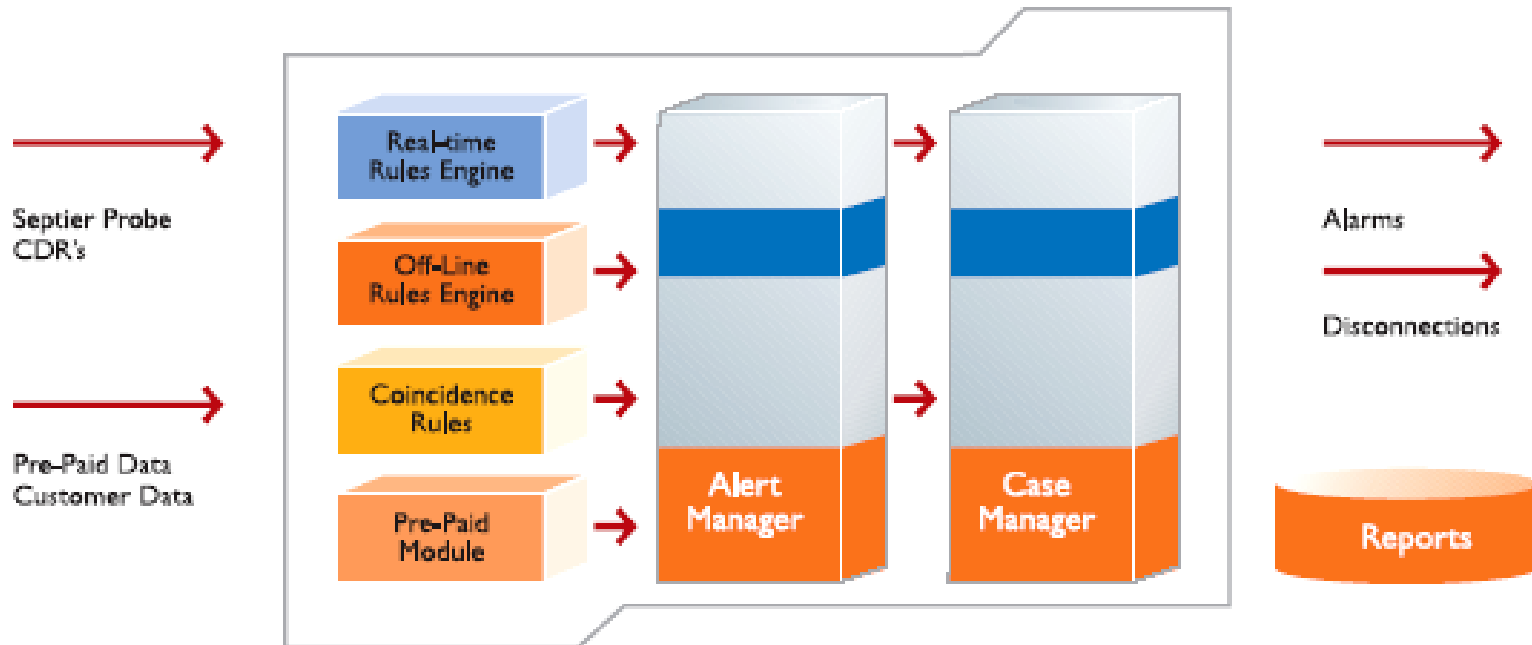


Case study

- Prevents internal fraud
- Returns investment in a short time

Benefits

Fraud Explorer™ - Workflow



Signaling Network Monitoring

- Signaling monitoring system based on passive probes installed at key locations in the network
- Providing real time information and statistics
- Intended for TDM and converged NGN networks

Description

- Link tracing
- Call tracing
- Counters
- Statistics
- Reporting

Features

- CYTA (GSM, UMTS, PSTN, NGN)



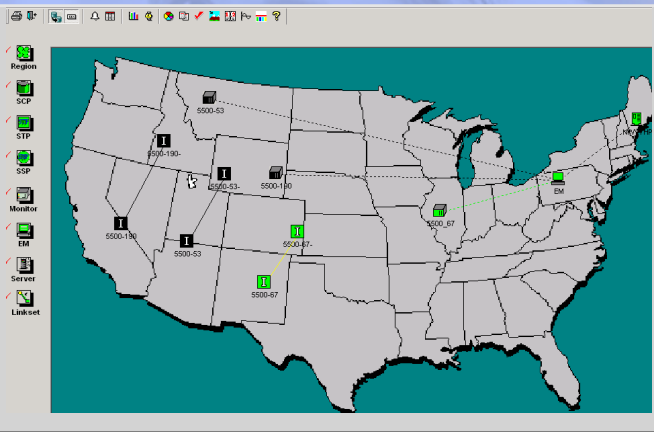
Case study

- Improves network performance
- Improves network quality of service
- Simplifies problems resolution
- Improves network utilization and efficiency

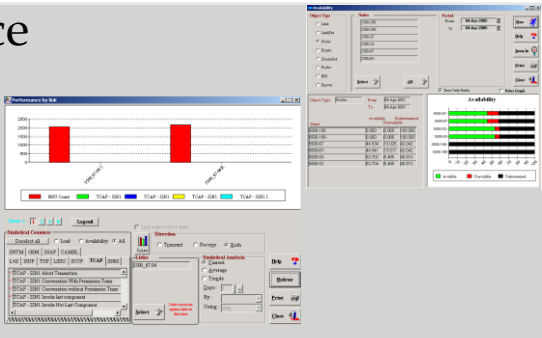
Benefits

Online map for system surveillance.

Presents SS7 and IP protocol information, such as faults, performance and tracing



Performance monitoring



Fault Monitoring

Alarm Name	Object Name	T	SubNet	Date
Emergency Changeover	5500_07_04	L	TU-T INAP	04/04/2005 07:06:31
Monitor comm unknown	5500-53	M	TU-T MULTI	04/04/2005 07:16:12
Monitor mode is unknown	5500-53	P	TU-T MULTI	04/04/2005 07:16:12
Link is Unavailable	5500-53.00	L	TU-T INAP	04/04/2005 07:16:12
Link is Unavailable	5500-53.01	L	TU-T INAP	04/04/2005 07:16:12
Link Set is Unknown	5500-53	K	TU-T INAP	04/04/2005 07:16:13
Node is Unknown	5500-53	N	TU-T INAP	04/04/2005 07:16:13
Node is Unknown	5500-55	N	TU-T INAP	04/04/2005 07:16:13
Link is Unavailable	5500_07_00	L	TU-T INAP	04/04/2005 07:32:30
Link is Unavailable	5500_07_13	L	TU-T INAP	04/04/2005 07:32:30
Link is Unavailable	5500_07_01	L	TU-T INAP	04/04/2005 07:34:16
Link is Unavailable	5500_07_05	L	TU-T INAP	04/04/2005 07:36:20
Link is Unavailable	5500_07_09	L	TU-T INAP	04/04/2005 07:36:33
Link is Unavailable	5500_07_09	L	TU-T INAP	04/04/2005 07:36:40
Link is Unavailable	5500_07_07	L	TU-T INAP	04/04/2005 07:36:41
Link is Available	5500_07_05	L	TU-T INAP	04/04/2005 07:36:44
Link is Unavailable	5500_07_02	L	TU-T INAP	04/04/2005 07:36:45
Link is Available	5500_07_02	L	TU-T INAP	04/04/2005 07:36:49
Link is Unavailable	5500_07_12	L	TU-T INAP	04/04/2005 07:36:45
Link is Available	5500_07_12	L	TU-T INAP	04/04/2005 07:36:49
Link is Unavailable	5500_07_09	L	TU-T INAP	04/04/2005 07:36:50

Tracing

Date	Monitor	Link	OPC	DPC	SI	Type	Ogt	Dgt
05/04/06 07:30:10.697						Protocol 23 in s		
05/04/06 07:30:10.701						Protocol 23 in s		
05/04/06 07:30:10.702						Protocol 23 in s		
05/04/06 07:30:10.705						Protocol 23 in s		
05/04/06 07:30:10.706						Protocol 23 in s		
05/04/06 07:30:10.711						Protocol 23 in s		
05/04/06 07:30:10.712						Protocol 23 in s		
05/04/06 07:30:10.716						Protocol 23 in s		
05/04/06 07:30:10.720						Protocol 23 in s		
05/04/06 07:30:10.720						Protocol 23 in s		
05/04/06 07:30:10.721						Protocol 23 in s		
05/04/06 07:30:10.726						Protocol 23 in s		

XDR Generators

- Real-time CDRs generated by passive probes
- Main interfaces:
 - A, IuCS, ISUP, SIP, MGCP, MEGACO, IOS, NOIS, etc.

Description

- Passive generation
- Independent source of data
- Configurable fields
- Oracle DB

Features

- Telephone (CDMA & UMTS)



- MIRS (IDEN)



Case study

- Can serve many applications
 - Revenue assurance
 - Fraud prevention
 - Billing
 - LI Data retention
- Works with “Flat rate billing programs”

Benefits

Call Data Mining

History Retention DB

Septier CDM											
	Type	Calling Number	Calling Insi	Calling Inei	Calling Cellid	Calling Cell name	Called Number	Called Insi	Called Inei	Called Cellid	Seizure T
> 1	CDR	994557850506	400022010149606	35030299893380	10202	ATC 38	994557787985	400022010077985	35012790801307	10202	13/11/2002-11
> 2	CDR	994552200120	400022000014028	44890110169802	10152	TV TOWER	994503743347			0	13/11/2002-11
> 3	CDR	994552200120	400022000014028	44890110169802	10152	TV TOWER	994503743347			0	13/11/2002-11
> 4	CDR	994502226522			0		994557713398	400022010003398	44867456728168	20163	13/11/2002-11
> 5	CDR	994503118138			0		994555900117	400022000031928	44831594461411	10042	13/11/2002-11
> 6	CDR	994503118138			0		994555900117	400022000031928	44831594461411	10042	13/11/2002-11
> 7	CDR	994503845054			0		994557802915	400022010102915	50009029007264	10221	13/11/2002-11
> 8	CDR	994503845054			0		994557802915	400022010102915	50009029007264	10221	13/11/2002-11
> 9	CDR	99412546016			0		994557723652	400022010013652	35077610006295	30240	13/11/2002-11
> 10	CDR	99412546016			0		994557723652	400022010013652	35077610006295	30240	13/11/2002-11
> 11	CDR	994503423415			0		994557813585	400022010113585	35072498783881	10183	13/11/2002-11
> 12	CDR	994552204200	400022023121533	35069710941343	30322	RADIO FACTORY	994503128039			0	13/11/2002-11
> 13	CDR	994552204200	400022023121533	35069710941343	30322	RADIO FACTORY	994503128039			0	13/11/2002-11
> 14	CDR	994557817953	400022010117953	44912541242277	30102	AKHMEDLI	994503590562			0	13/11/2002-11
> 15	CDR				0		994555511112	400022000022242	35011110719054	10213	13/11/2002-11
> 16	CDR	994503151164			0		994557814721	400022010114721		10381	13/11/2002-11
> 17	CDR	994503406055			0		994557811027	400022010111027	52007919880887	30101	13/11/2002-11
> 18	CDR	994502000485			0		994555511112	400022000022242	35011110719054	10213	13/11/2002-11
> 19	CDR	994503423415			0		994557813585	400022010113585	35072498783881	10183	13/11/2002-11
> 20	CDR	994502236817			0		994557883303	400022010185153	52002889032102	10201	13/11/2002-11
> 21	CDR	994502236817			0		994557883303	400022010185153	52002889032102	10201	13/11/2002-11
> 22	CDR	994503151164			0		994557814721	400022010114721		10381	13/11/2002-11
> 23	CDR	994557763274			0		994503990793			0	13/11/2002-11
> 24	CDR	994557809646	400022010109646	52004771816742	10043	ATC 98	994502161616			0	13/11/2002-11
> 25	CDR	994503406055			0		994557811027	400022010111027	52007919880887	30101	13/11/2002-11
> 26	CDR	994557849482			0		994503493380			0	13/11/2002-11
> 27	CDR	994557731401			0		994503740859			0	13/11/2002-11
> 28	CDR	994503749594			0		994557826570	400022010108170	35077010319774	10033	13/11/2002-11

Summary

- **When budgets are tight the only way to maximize security per \$ is a dual usage system**
- **Existing products and solutions combine these capabilities today**
- **The strategy is successfully implemented in the field for years around the world**

Thank You!