

Passive Surveillance in support of Lawful Interception



PASSIVE SURVEILLANCE SOLUTIONS

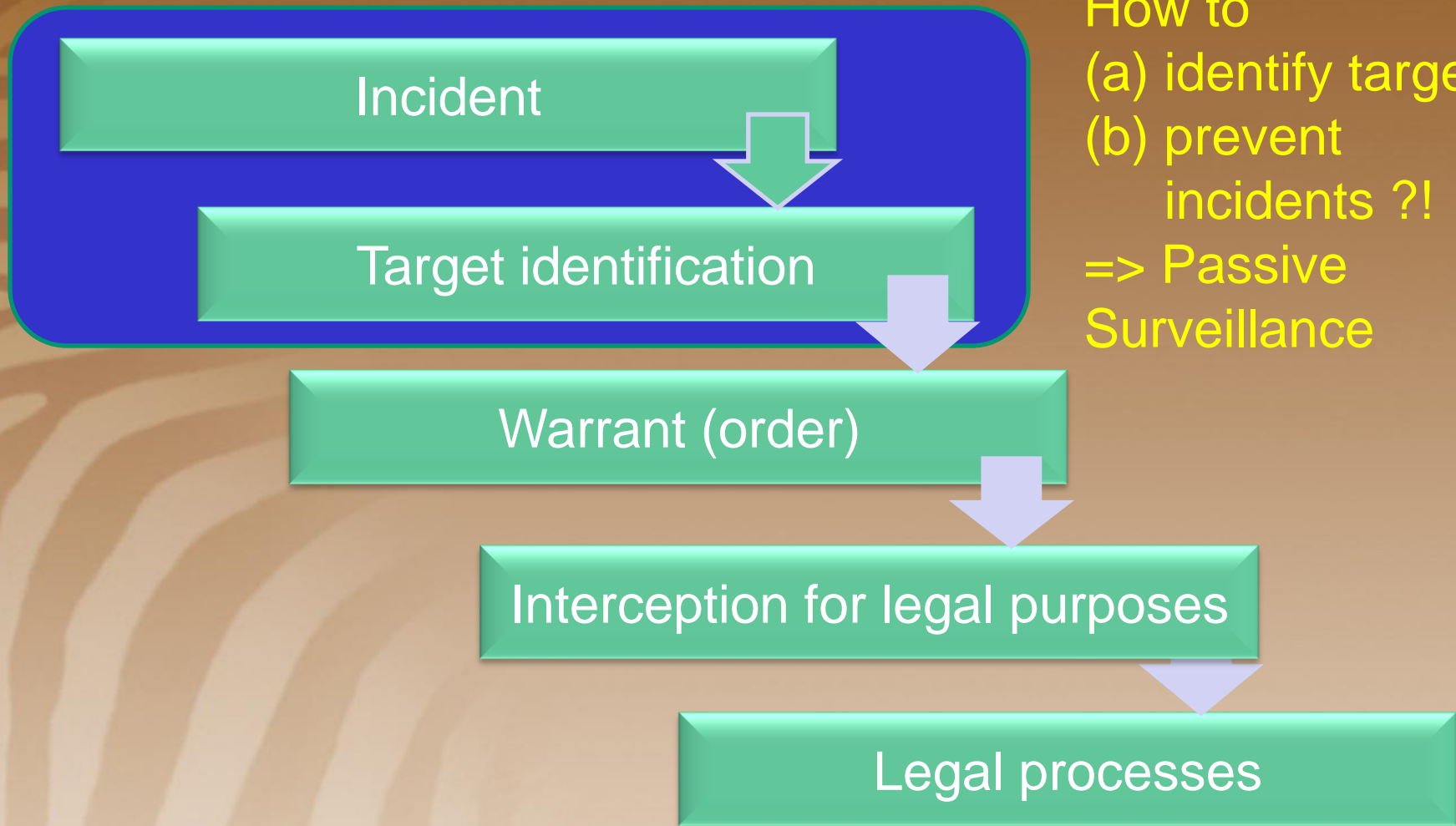
André Scholtz

a.scholtz@vastech.co.za



- Created 1999
- Core focus: Zebra Passive Surveillance System
- Operational systems in number of countries, some with more than:
 - 36000 channel capacity,
 - 3000 Terabyte storage

Lawful Interception



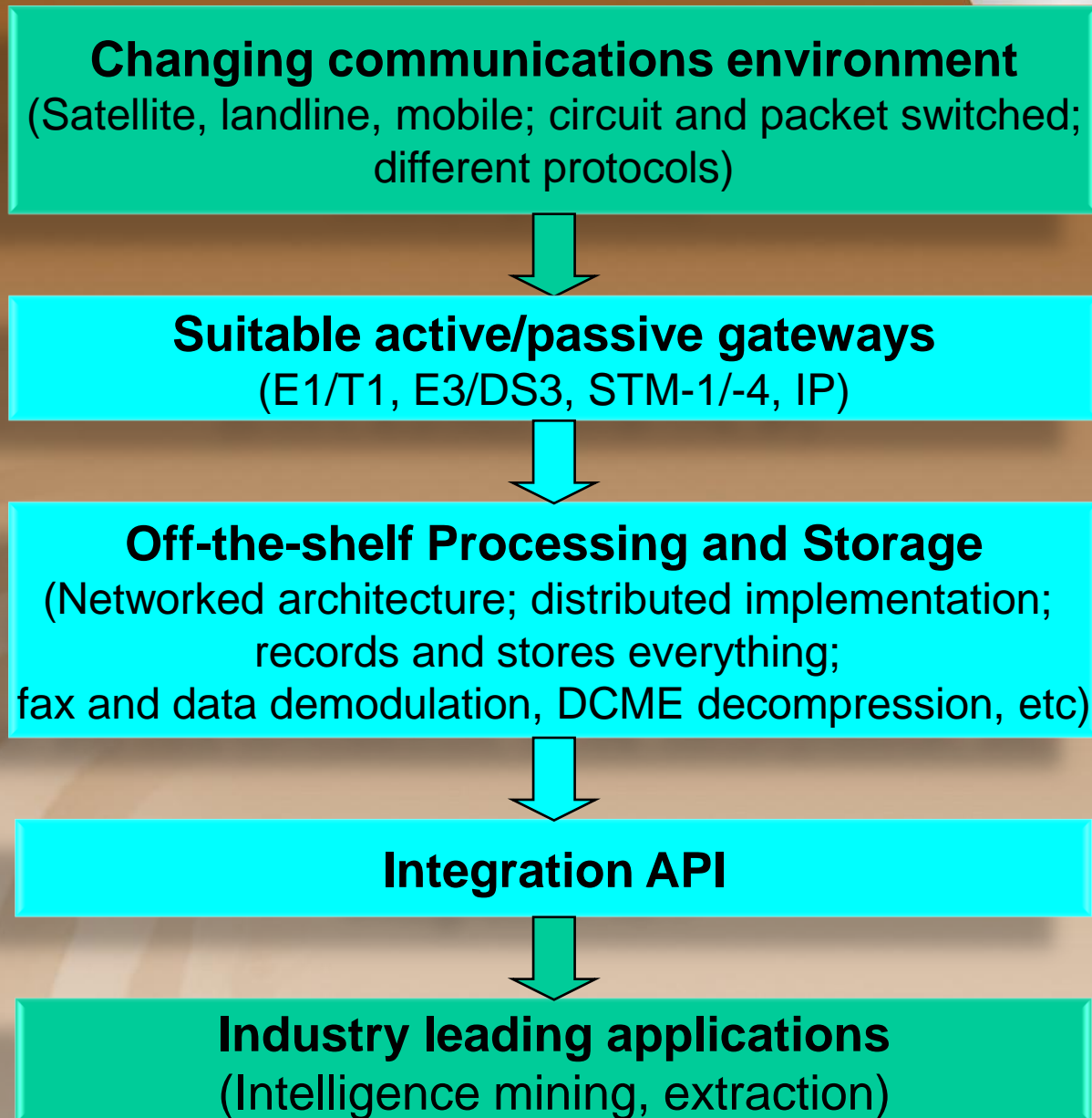
How to
(a) identify targets
(b) prevent incidents ?!
=> Passive Surveillance

Understanding passive surveillance demands



- 40 000 channels plus in high density
 - Petabytes of storage
 - Covert and passive
 - Multiple agencies
 - IP, TDM; satellite, international switching centers, mobile, submarine landing stations
 - Soon these are also LI demands (already legislation requires storage of IRI) – world is moving to mass interception
- ➔ Conventional systems not suited

The ideal solution



Zebra Capturing Unit

AVAS Tech

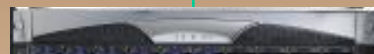
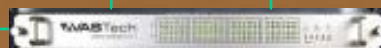
PASSIVE SURVEILLANCE SOLUTIONS

Uncompressed
E1 streams
(with hyper-
channels)

IP backbone
GigE Ethernet

Database
storage RAID10

Network attached
content storage
RAID10



DCME streams

Gateway: in 1 U:

- 64 bidirectional E1s (128 inputs)
- 4 STM1 or 1 STM4 inputs

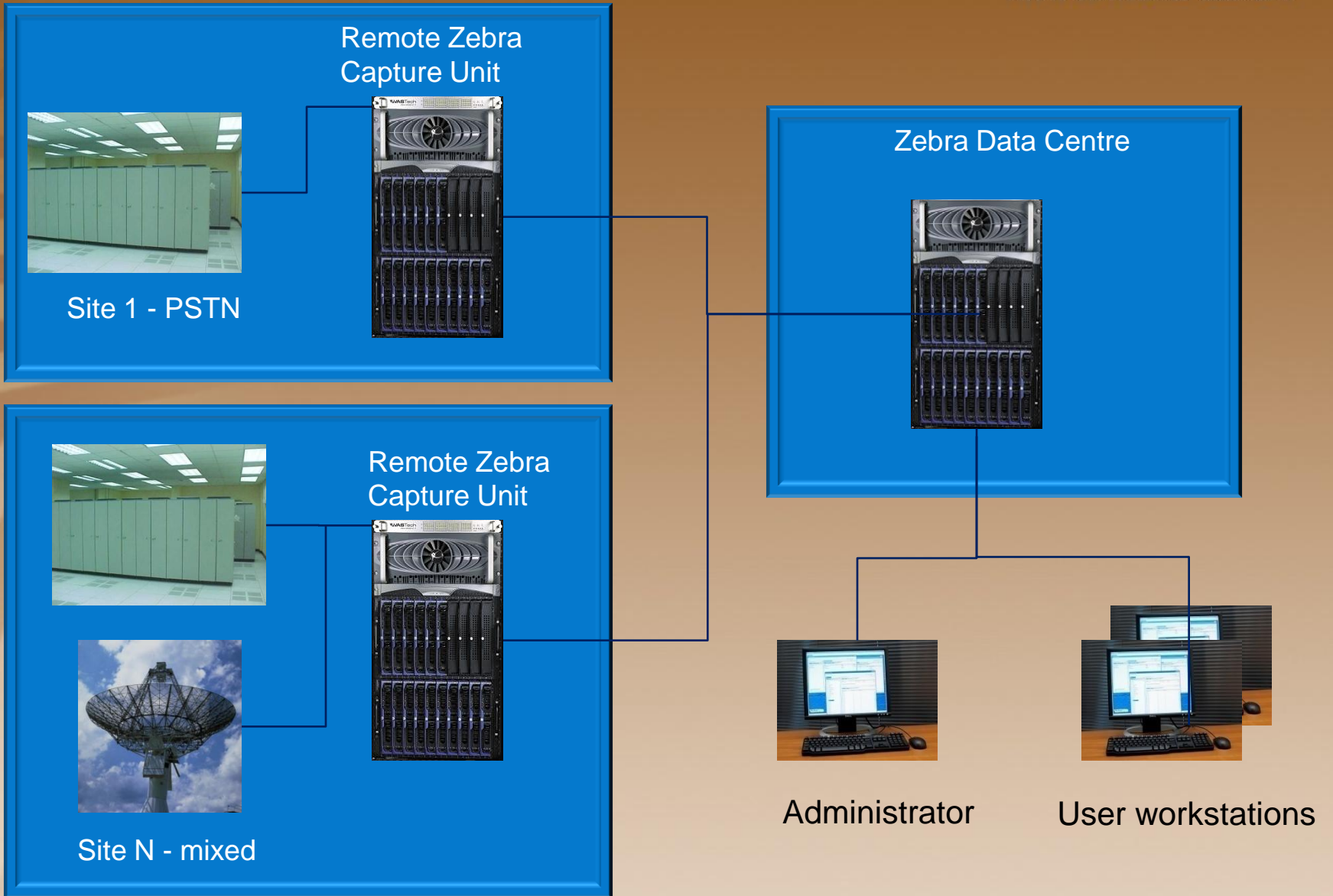
Commercial
blade servers

Commercial
storage (40 TB
per 4 U)



Example: 4000
channels, with storage
and fax/data
demodulation in 24 U
rack

System architecture



Key characteristics



- Record and store everything that it is connected to
 - No switches – no previous target knowledge required
 - High intelligence value – analyze and listen to the past
- Software centric, aimed at integration
 - Fax, data and satellite DCME decompression integrated as software
 - API to integrate to customer applications and analysis tools
- Commercially available “off-the-shelf” hardware
 - Low vendor dependence
 - Benefit from Moore’s law

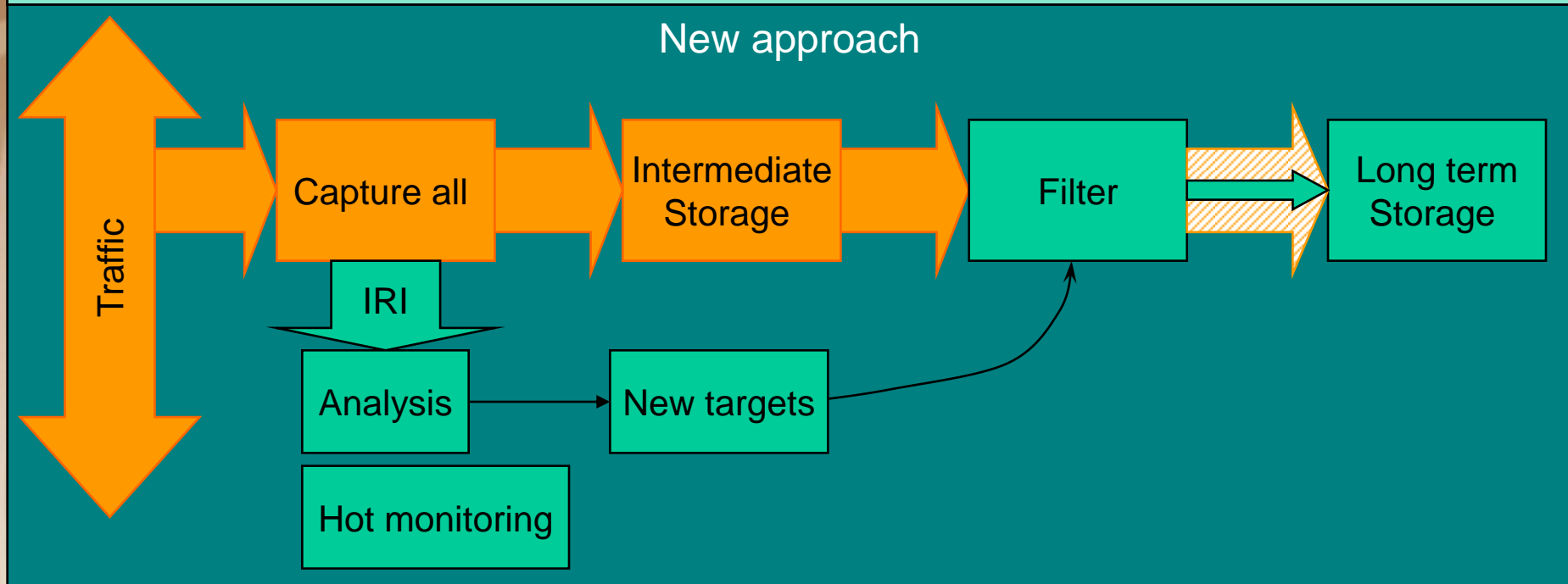
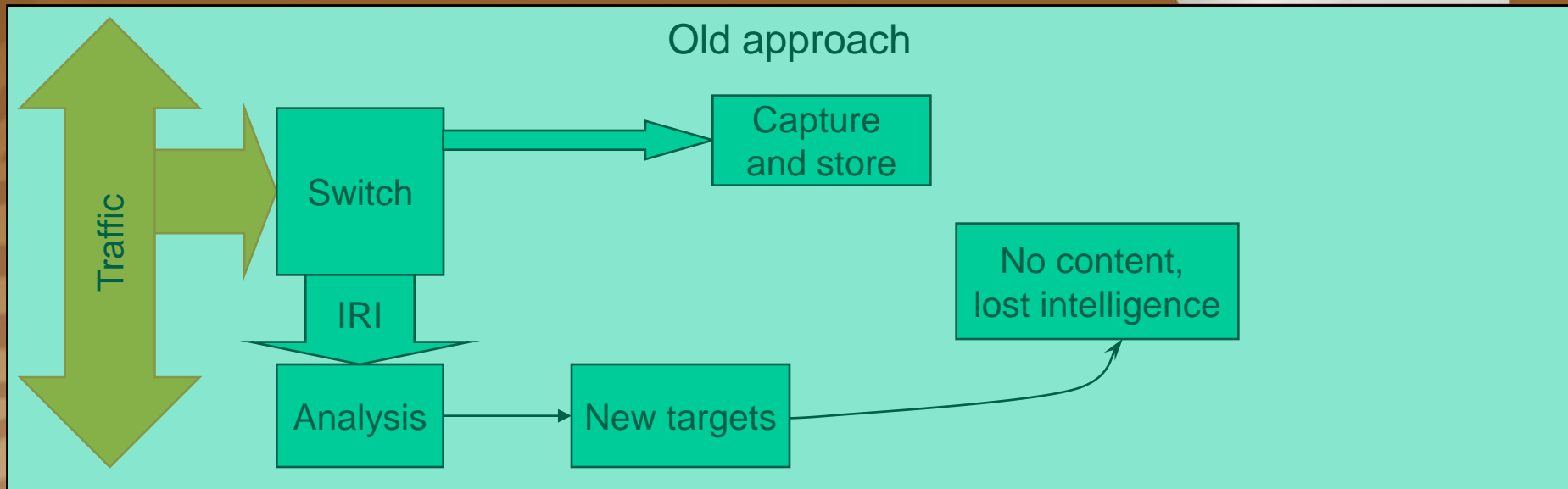
Key characteristics

- Highly scalable and distributable
 - 40 000 channels+ with unified view
 - Add more servers into Capture Unit
 - Add more Capture units
- High density
 - 500 stereo E1s per 42 U rack
 - 64 stereo E1s in 1U gateways for interception on remote sites – small footprint
- Groups and permission based security
 - Tagging and workflow
 - Audit trails
- Advanced CIC mapping (SS7)



Capacity of more than 9000 channels and 160 TB in 1 rack, including fax and data demodulation. Remote gateways.

Record all and filter



Storage flexibility - example

All intercepts in 64 kbps stereo for 5 days

All voice
compressed 8 kbps
stereo 360 days

All fax and data
uncompressed for
further 30 days

Fax and data
demodulated for
remainder of 365
days

All IRI for 2 years
(data retention
including
uncompleted calls)

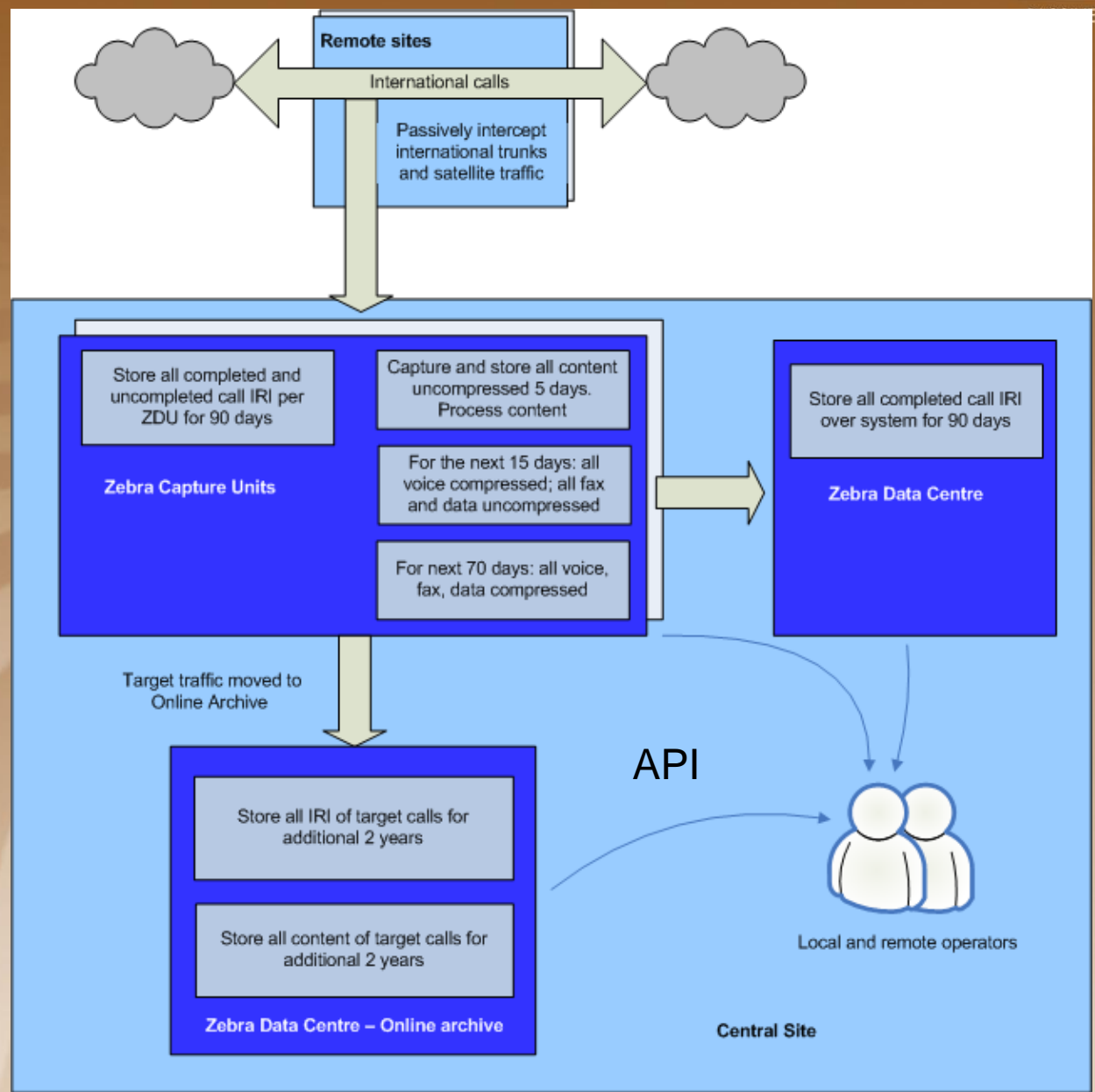
All known target content for additional year -
online archive

Exporting and migration

Storage flexibility - example



AVAS Tech SURVEILLANCE SOLUTIONS



IRI and content enrichment

- Made for integration – API
- IRI enrichment, e.g.
 - Gender identification
 - Speaker identification
 - Language identification
- Content enrichment
 - OCR and text search
 - Word spotting
- Intelligence extraction
 - Filters
 - Network view

Conclusion



PASSIVE SURVEILLANCE SOLUTIONS



Passive surveillance is complementary to LI (and provides more)

- Provides a much larger pool of information
- Helps identify targets and prevent incidents



Systems do exist that provide large scale passive surveillance capabilities while:

- Providing unique intelligence value
- Protect investment against changes in technology
- Low vendor hardware dependence



Agencies are invited to demonstration:
Track 5, Session B
Room 2.3
10:00-11:00