

# Strategic Telecommunication Interception - Sample Calculation

- According to the german regulatory authority (“Bundesnetzagentur”) in 2010 there was placed
  - 196,4 Billion Minutes of PSTN calls
  - 101,1 Billion Minutes of GSM calls
  - a data volume of 65 Million GB was transmitted in mobile networks, a data volume of 3,2 Billion GB was transmitted in broadband networks
- Source: [http://www.bundesnetzagentur.de/SharedDocs/Downloads/DE/BNetzA/Presse/Berichte/2011/Jahresbericht2010pdf.pdf?\\_\\_blob=publicationFile](http://www.bundesnetzagentur.de/SharedDocs/Downloads/DE/BNetzA/Presse/Berichte/2011/Jahresbericht2010pdf.pdf?__blob=publicationFile)

## Compression

Intercepts are stored at the original compression rate (e.g.: G.711 A-law or  $\mu$ -law). Many processes, like fax/modem demodulation and speaker identification, require audio in the original format. Voice intercepts can be compressed:

1. when migrated between Zebra deployment units, or
2. when stored for a configurable period of time.

Any codec available for the Linux system can be integrated with the Zebra system. The following codecs are available by default and free of licensing constraints:

1. G.711 A-law and  $\mu$ -law.
2. Speex 5 kbps – 15 kbps.

The following table lists the available code rates for Speex that are supported by the Zebra system. Field tests indicate that 8 kbps provide acceptable quality for most intelligence applications

<b>Speex codec quality vs bit rate</b>		
<b>Bit-rate (bps)</b>	<b>mflops</b>	<b>Quality/description</b>
2,150	6	Vocoder (mostly for comfort noise)
5,950	9	Very noticeable artifacts/noise, good intelligibility
8,000	10	Artifacts/noise sometimes noticeable
11,000	14	Artifacts usually noticeable only with headphones
15,000	11	Need good headphones to tell the difference
18,200	17.5	Hard to tell the difference even with good headphones
24,600	14.5	Completely transparent for voice, good quality music
3,950	10.5	Very noticeable artifacts/noise, good intelligibility

# Strategic Interception Calculation for all german (PSTN) phone calls 2010:

- 196,4 Billion Minutes
- Coded with 8 Kbps (1000 Bytes per Second = 60.000 Byte per Minute)
- 196,4 Billion Minutes = 11.784.000.000.000 Bytes
  - = 11.784.000.000 Mb
  - = 11.784.000 Gb
  - = 11.784 Tb let's add some overhead (include call parameters etc.)
  - = roughly 15 Pb

# Storage Costs (2011)

## Petabyte-Rack ([www.petarack.com](http://www.petarack.com))



**Featuring:**

- A full petabyte of raw storage in a single rack, under a single namespace or volume
- Enterprise level iSCSI Target built-in; fibre channel target optional



**Featuring:**

- ZFS file system based, delivering fast, secure storage with unlimited scalability
- Unlimited snapshots and clones



**Featuring:**

- Powerful, redundant head units, Each with 4 open expansion slots
- All hard drives are in individual Hot swap bays with in-rack access

**\$495,000**

# Strategic Interception Calculation for all german (PSTN) phone calls 2010:

- 1 Pb Storage Costs = 495.000 USD = about 380.000 EUR
- 15 Pb = 5,7 Mio EUR
- Plus Installation, Personal, Energy, Wtf's... maybe 20-30 Million EUR\*
- From Governmental point of view: Affordable
- Private Enterprise point of view; subject to ROI calculation

\* bribery not included. Might have to double to get proper access to the fibre optics cables.

# Strategic Interception Summary

- It's being done. In many countries.
- Analyze situation for your country.
- In [http://buggedplanet.info/index.php?title=Category:Strategic\\_Interception](http://buggedplanet.info/index.php?title=Category:Strategic_Interception) currently 4 companies offering this, VASTECH being the most important one