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# Trends in Public Safety Communications

## CREST Users Forum

October 13, 2010

# Agenda

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- Some general trends – How we expect to use technology
- The forces at play – not survival of the “best”
- A technology primer – acronymapoloosa
- The best guess – what will we have and when

# Some History – The Rise and Fall of Public Safety Land Mobile Radio

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- Public safety and military once led the development of land mobile radio (LMR) technology – those days are long gone
- The rise of cell systems didn't just surpass LMR technology, but it stole, along with information technology in general, the resources – the development expertise, research, spectrum, sites, technologists.....
- The result – Trend #1 – Public Safety Land Mobile Radio is a diminishing niche market

# Changing Operations

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- Public safety operations has evolved, in some ways dramatically
- Biggest impact on technology: expectations for more information, faster and more reliably
- We expect everything that a iPhone on a 3G cell network can give us and more
- Trend #2: Increased expectations
- Yet, good ol' push to talk release to listen group call has yet to be solved by cell phones

# Stronger, faster, cheaper?

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- Technology costs have come down dramatically, yet public safety radio has failed to follow suit.
- Yet, it must.
- Trend #3: Decreasing costs

# Data, data, data

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- Most of our bandwidth usage is for data
- Digitized voice (VoIP) is a trivial impact on networks – but requires very high quality of service (QoS) and very low latency
- Trend #4: Voice is carried on data networks

# Consolidation

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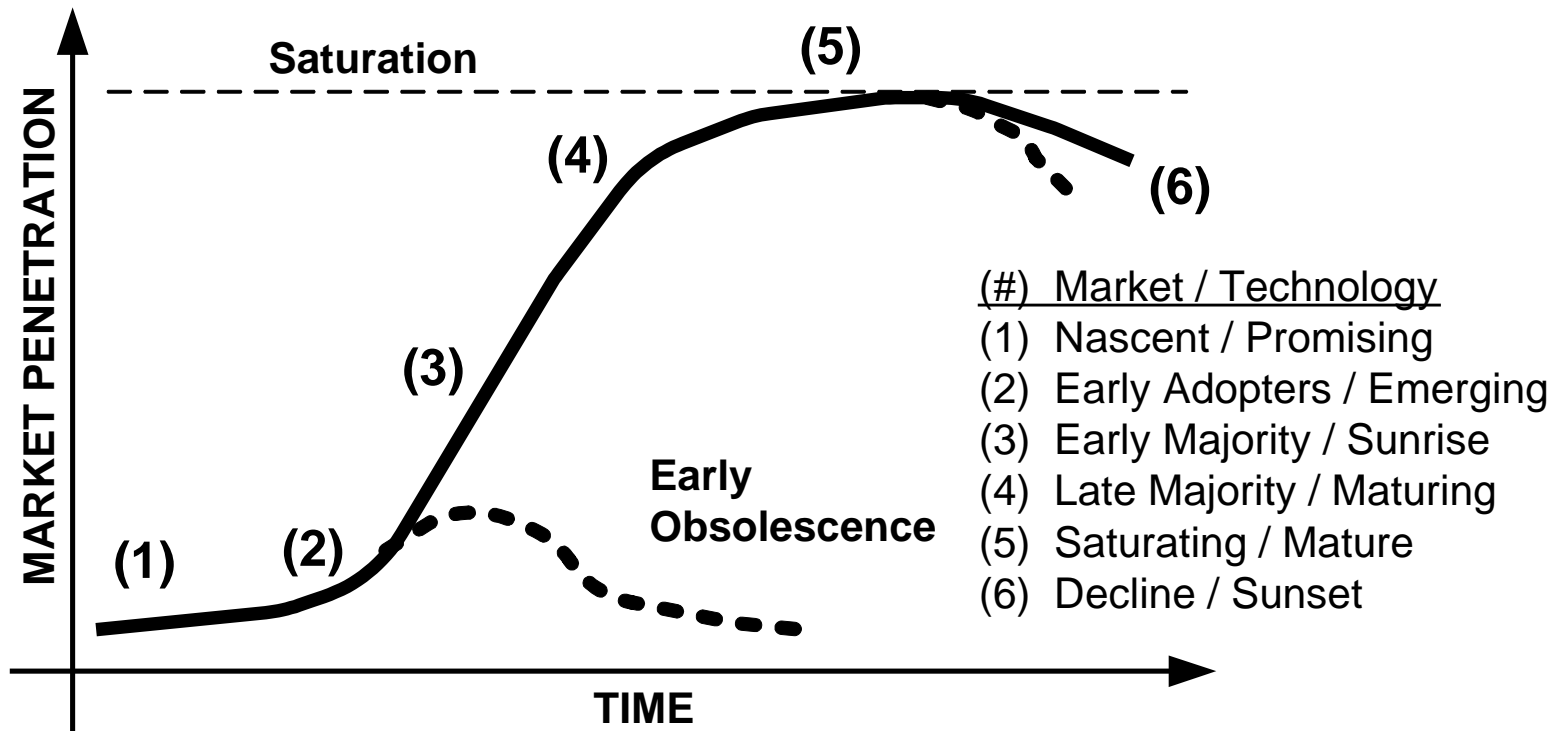
- CREST was developed at the beginning of a trend to consolidating public safety and public sector networks
- The trend will continue, but some services and applications will move to cellular or commercial networks

# Spectrum is King

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- Radio spectrum is constrained, and immensely valuable (underpriced by some measures)
- Public safety needs to protect spectrum for its specific needs – to point

# Technology Market Life Cycles



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# Land Mobile Radio Technologies

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- The “big” 3, in alphabetical order:
  - DMR (“Digital Mobile Radio”) – ETSI standard and variants thereof
  - P25 (short for “P25”) – North American digital radio standard
  - TETRA ( Trans European Trunk Radi... doesn’t matter)
- Others
  - OpenSky, Tetrapol, iDEN\*

# DMR

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- Low cost trunking, open standard, targeted at low tier market – utilities, transportation, events, site operations etc....but also serving low tier public safety, 'cause it works and is cheap
- Proprietary variants of DMR – MotoTRBO, NEXEDGE – doing fairly well replacing conventional and old analog trunking systems
- It not expected to it a point of replacing top tier public safety, but may drive their costs down

# P25

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- Open standard public safety digital trunked radio
- Many manufacturers, competitive supply
- Long promised, hit its stride (in North America) – (just in time to be side swiped?)
- Major investments going into P25 systems across North America
- Next generation evolution unclear...

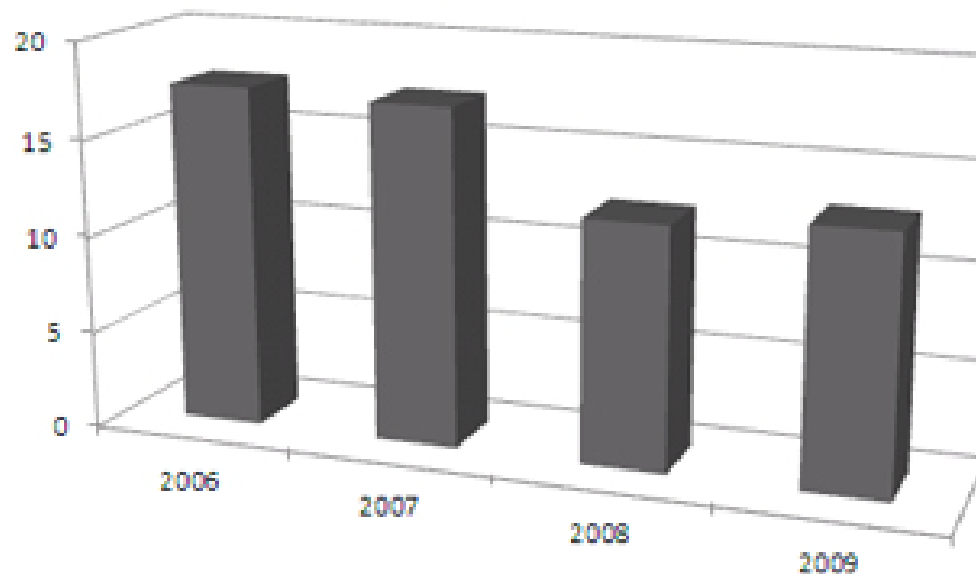
# TETRA

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- European (ETSI) open standard digital trunked radio, deployed globally ....except in North America
- Recent trials and assessments show it to be very competitive with P25
- Expect it to enter the North American market in 2011, definitely in 2013
- Again – just in time to be side swiped?

# iDEN

- iDEN managed to bridge the gap between cellular and push to talk radio
- In its sunset



Sprint's iDEN subscriber base has declined from around 17.6 million at the end of 2006 to around 13 million at the end of 2009.

# LTE - The Side Swiper

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- LTE, or Long Term Evolution, is expected to be the 4<sup>th</sup> generation cellular technology that also fills the requirements of public safety LMR
- Broadband and voice
- Pilot systems already rolling out, expect most carriers to start talking about their LTE migration plan

