# Disrupting 3G

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15 March 2003

# Today’s Menu

- Intro
- What are Disruptive Technologies
- Market Trends
- Threats to 3G
- Discussion

# Disruptive Technologies

**Technology Innovations** that in the *near term* result in worse product performance, but nevertheless bring to a market a *different* value proposition, that had been available before, which ultimately is sufficient to precipitate the leading firms' failure[1]

# Disruptive Characteristics

**typically cheaper**

**simpler**

**smaller**

**more convenient** to use (frequently but not always)

**customer base** initially is different to that of established firms

**promise lower margins**

**of no interest or use** to good customers of established firms

# Conspiring Market Trends

- The Telecoms industry is entering a epoch of transformation and change, catalysed mostrly by a conspiring plethora of ruthlesly accelerating and *converging* trends.
- Such trends are coming from different sectors of the electronics, telecoms, semiconductor, computer, communicatons and society.

# Wireless LANs

- have been around from the early days of LANs - ALOHA
- affordable
- ubiquitous, almost invisible [2]
- one prevailing IEEE standard
- in many form factors, so manufacturers have to gain from add-ons to new products - new Intel Centrino campaign, Agilent, Cisco. Nokia, Ericsson
- unlicensed spectrum - hot-spot model, new billing schemes
- BT, Verizon, T-Mobile, community nets

# Obsolete PDAs ?

- what about 2-Box scenarios ? - iPaq + Bluetooth phone ?
- tandardised hardware - economies of scale - Time to Market
- comfortably run Soft-Phones
- cheap add-on 802.11 cards (from PCMCIA to SDIO)
- excellent platforms to experiment with VoIP and new services when connected
- only mobile platform that M$ is left with
- what about the Sharp Zaurus phenomenon (e.g Japan)

# 3G Technology Complexities

- new high-end GPRS handsets cost something around 20-40 million to develop
- 150$ to manufacture in orders of million units
- developing, verifying and qualifying GSM/GPRS equipment is VERY expensive
- 3G/UMTS software, hardware and infrastructure is even more complex and expensive
- BOM will eventually drop, but how much ?
- while software and development costs go up
- this is impacting TTM in a seasonal industry whith very short sales windows

# Ubiquitous Broadband

- Europe and the US have seen the advent of ADSL and cable connections
- from home to business and pubs everyone is installing broadband
- consumer broadband now costs between 30 and 50 Eur
- enough bandwidth for everyone to use and share ?
- people will get used to this unlimited broadband everywhere
- it is liberating for people to share bandwidth (opposing to operators)

# Telcos Greed and Problems

- Telcos are greedy noone likes them - people may decide to share ;-)
- expensive, complex infrastructure - sustained market up only 4% last year [3]
- inefficient - expensive to maintain, call centres etc
- many are in debt
- spent dozens of billion of euros in 3G licenses, never mind 3G infrastructure
- restructuring, soul searching, turmoil, slow moving
- they haven’t convinced or found how to make money from 3G

# VoIP

- naively considered as a nascent and unproven technology
- Van Jacobson in ’88 was effectively debugging RIP by testing VoIP 15 years ago !!!
- many long distance/low-cost carriers run only on VoIP, 80% of Telecom Italia’s long distance traffic by end of 2003 !!!
- 34.000 of Cisco employees have VoIP desk phones
- VoIP is bringing corporate costs down at times when everyone is cost cutting
- ”10% of businesses are planning to install VoIP phones”, according to Cisco [3]

# IPv6

While people were experimenting with VoIP on the public internet decades ago, others were designing IPv6 with VoIP in mind [4].

- VoIP and real time multimedia streaming in mind
- Mobility
- Security
- Efficiency
- Configurability
- QoS

# Microprocessors

- many embedded microprocessors are now powerful enough to run everyday PC tasks
- they are more power efficient
- more configurable
- cheaper
- TTM is better
- freedom from the wintel monopoly allows designers and manufacturers to innovate
- more flexible -SoCs etc allow people to make cheap products the way they want
- many will run Linux

# Linux

- ubiquitous - from mainframes to wearablea and watches ;-)
- commodity - with high competition
- benefits the service and products industry
- cheap to deploy
- seeds and allows innovations
- very reliable
- very flexible
- and very very well connected !!!

# Cost cutting and efficiency drive

- Internet Bubble
- Telecoms Bubble
- corporations are cost cutting
- all industries are looking to way of becoming more efficient
- need is the mother of all inventions

# Threats to 3G

- ubiquitous VoIP
- IPv6 SIP/VoIP phones/kit over WLANs
- Everything over IP
- low cost of entry to new innovative companies
- all the above trends

# Discussion

- How to bring VoIP over WLANs to market ?
- GPRS to WLAN Roaming
- Billing and access control
- Cell planning
- Crossing the Chasm :-) [5]

# Bibliography and References


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