Intel Communications Group
SEAN MALONEY
Executive Vice President
General Manager, Intel Communications Group

Agenda

1) The Broadband Wireless Era

2) Our Challenges For Broadband Wireless

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2) Our Challenges For Broadband Wireless

Telecom
Industry
Broadband Wireless

Telecom ’03 – Geneva

Swisscom* AG is set to provide a combined GPRS, 3G, and 802.11 PC card to its customers that will allow them to use any of those wireless access modes.

Light Reading, October 12, 2003

HP* spotlights mobile gear

As part of a big push in mobile computing, Hewlett-Packard announced a slew of devices that can connect to a wireless network--or often more than one network.

CNET on ITU, October 13, 2003

VoIP, cell phone downloads take center stage

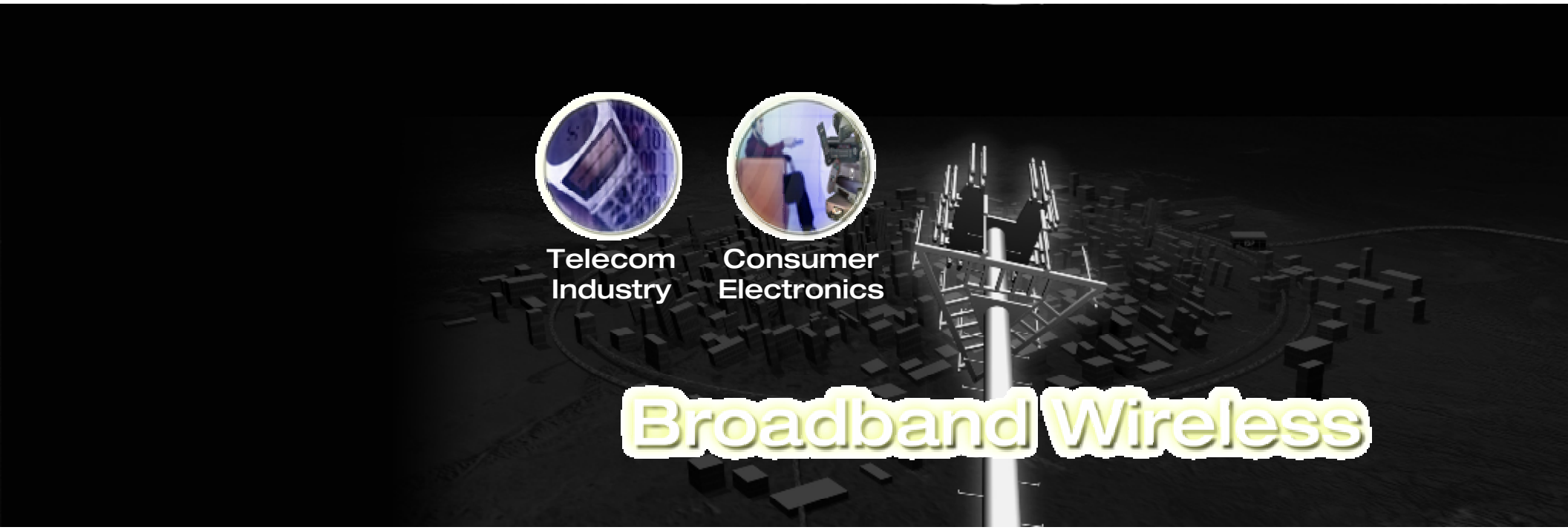
Two technologies expected to take center stage this week are VoIP and downloadable software for wireless devices.

CNET on ITU, October 12, 2003

NTT DoCoMo Inc.* showcased its 3G network and I-mode technology, with executives… on board to talk future 4G (fourth-generation) technologies.

IDG News, October 12, 2003

* Other names and brands may be claimed as the property of others.


Telecom
Industry
Consumer
Electronics
Broadband Wireless

Consumer Electronics Show
Las Vegas ‘04

Home Is Where
The Wireless Hub Is

Every appliance in the home someday will communicate with each other like a well-oiled staff of digital servants...

Wall Street Journal on CES January 8, 2004

“The wireless network becomes the backbone of a home's entertainment infrastructure.“

Steve Troyer, Linksys, CES, Jan. 8, 2004

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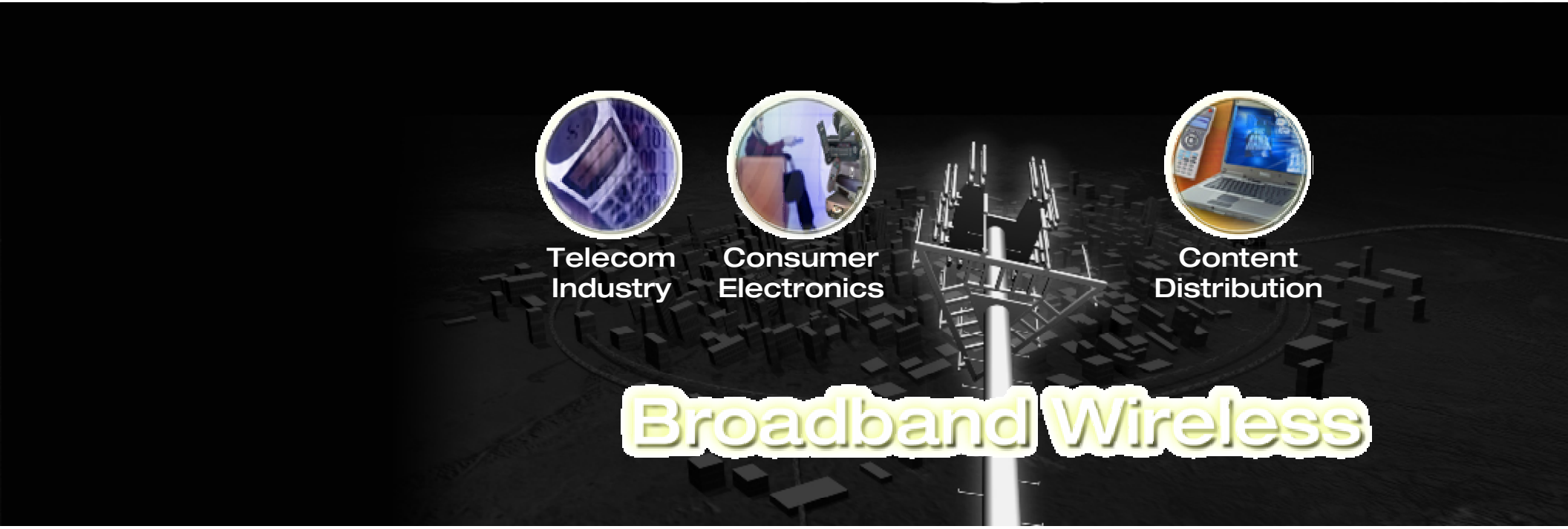
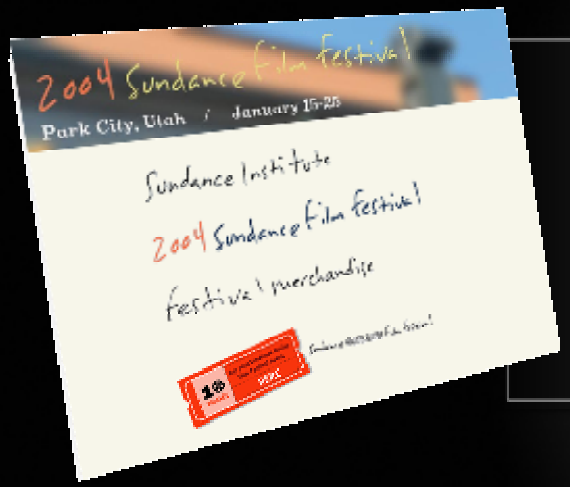

Telecom Industry
Consumer Electronics
Content Distribution
Broadband Wireless

Content Distribution



Stars Show Up At Sundance*

Intel was showing its new Centrino, wireless technology that beams movies to PCs and home theaters and promises to expand the market for Indie films.

Reuters News, January 18, 2004

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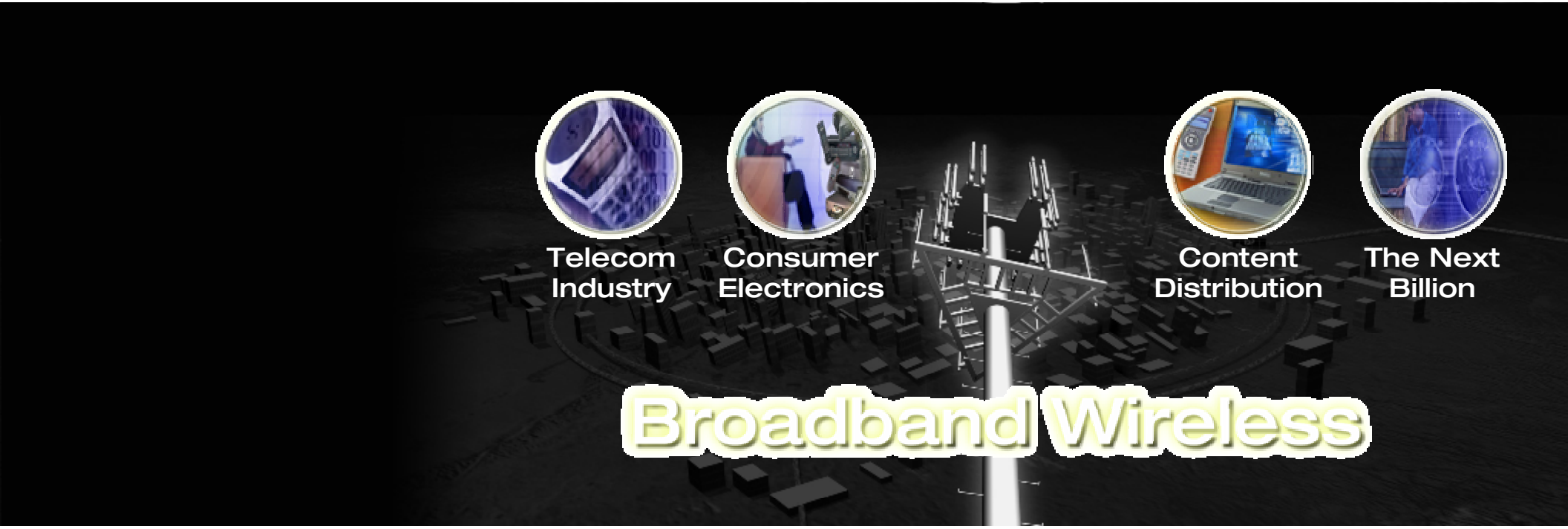
Sundance
VIDEO


Telecom Industry
Consumer Electronics
Content Distribution
The Next Billion
Broadband Wireless

The Next Billion

HANOI (AFP) - Vietnam Data Communications Co. (VDC) said it has launched the country's first wireless hotspot enabling surfers to access the Internet on their computer laptops or mobile devices.

Yahoo News June 13, 2003

DakNet: Wi-Fi store-and-forward in India

A simple store-and-forward Wi-Fi system, using a government bus as a central linkage. The bus contains a simple Wi-Fi installation and server, and when in range of one of the outlying information kiosk's it sync's data for later processing....

Yahoo News May 8 2003

Wi-Fi Bridges Indonesia's Digital Divide

802.11 Planet May 17, 2003

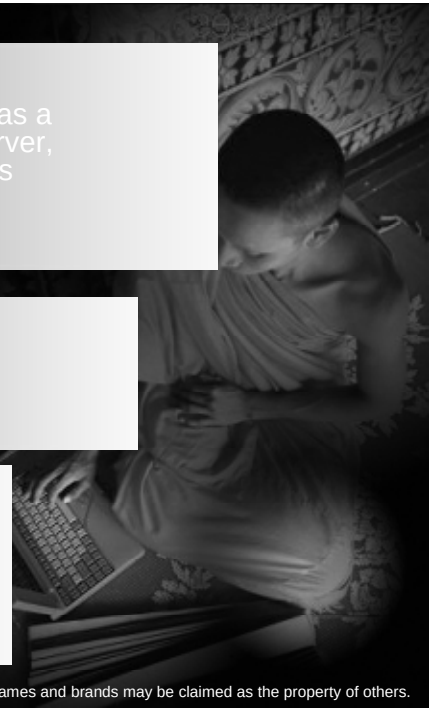
Wi-Fi Delivers for Developing Countries*

The UN explains, "pilot projects around the world are fast proving that Wi-Fi technologies can bring broadband access to underserved populations at a fraction of the cost of alternative wired or wireless technologies.

802.11 Planet May 1, 2003

No messing around with wires anymore. Wi-Fi comes to Nepal

Nepali Times, January 2003



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Agenda

1) The Broadband Wireless Era

2) Our Challenges For Broadband Wireless

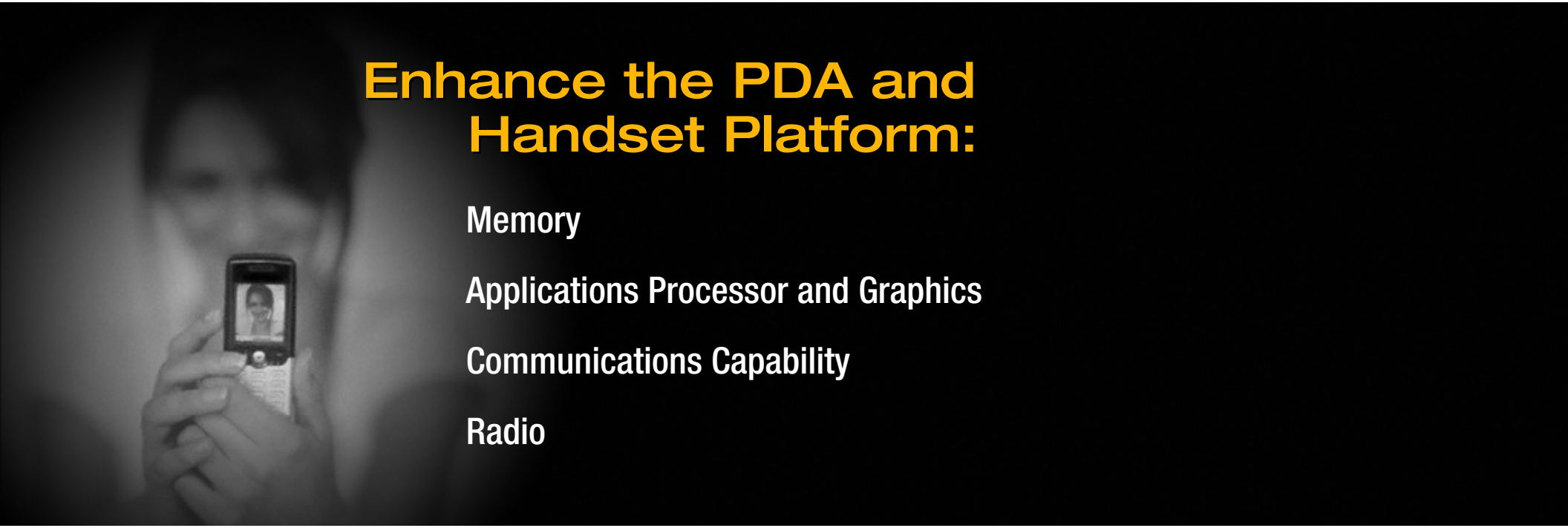
Challenge #1:

Improve the client.

* Other names and brands may be claimed as the property of others.

San Mateo Police
VIDEO

* Other names and brands may be claimed as the property of others.


Enhance the PDA and Handset Platform:
Memory
Applications Processor and Graphics
Communications Capability
Radio

Enhance the PDA and Handset Platform:
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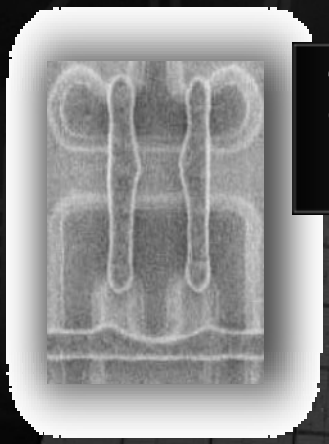
Applications Processor and Graphics
Communications Capability
Radio

90nm: A Challenge For The Industry



"Modeling challenges for 90nm and below…"

EE Times, September 19, 2003

"Photomask yields remain troubling, especially down to 90nm."

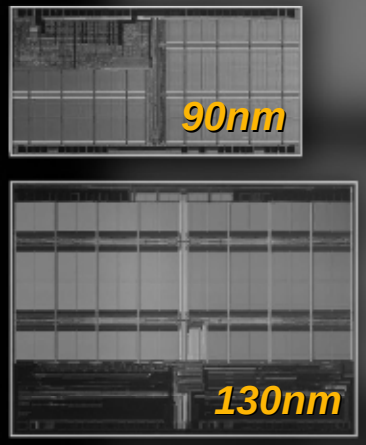
Silicon Strategies, September 12, 2003

"Challenges associated with scaling below 100nm become extremely complex with Flash Memory."

European Equity Research, June 23, 2003

* Other names and brands may be claimed as the property of others.

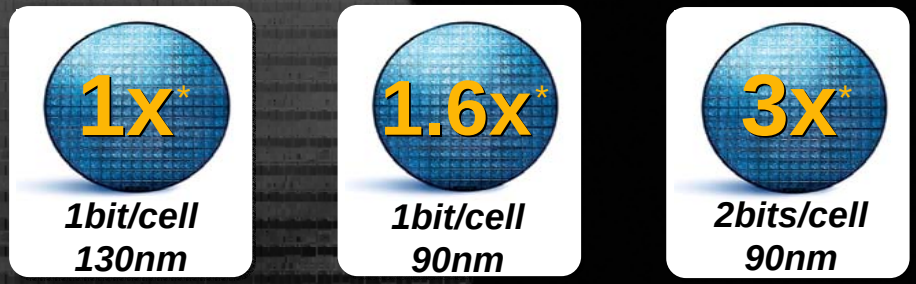
World's First 90nm NOR Flash Memory



- Low Cost
- Increased Capacity
- Samples in April '04
- Production in Q3'04

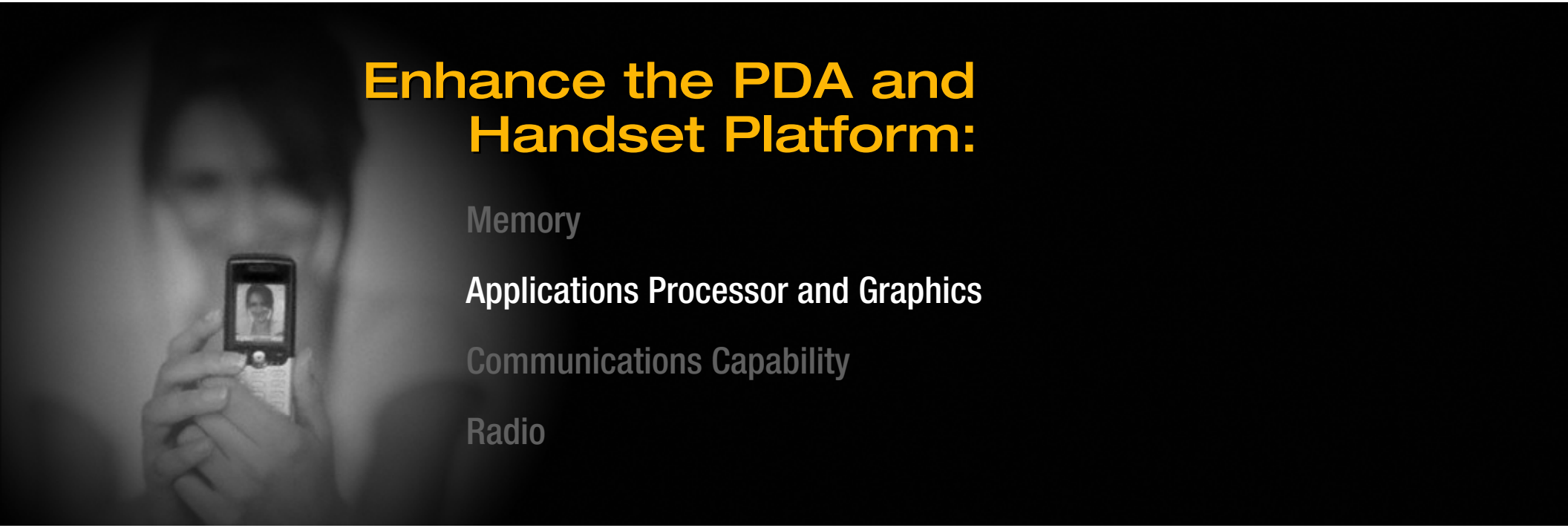
** Comparison of 90nm vs. 130nm at equivalent density*

90nm Continues:
Intel StrataFlash® Wireless Memory



Multi-Level Cell on 90nm delivers 3X bits/wafer than 130nm

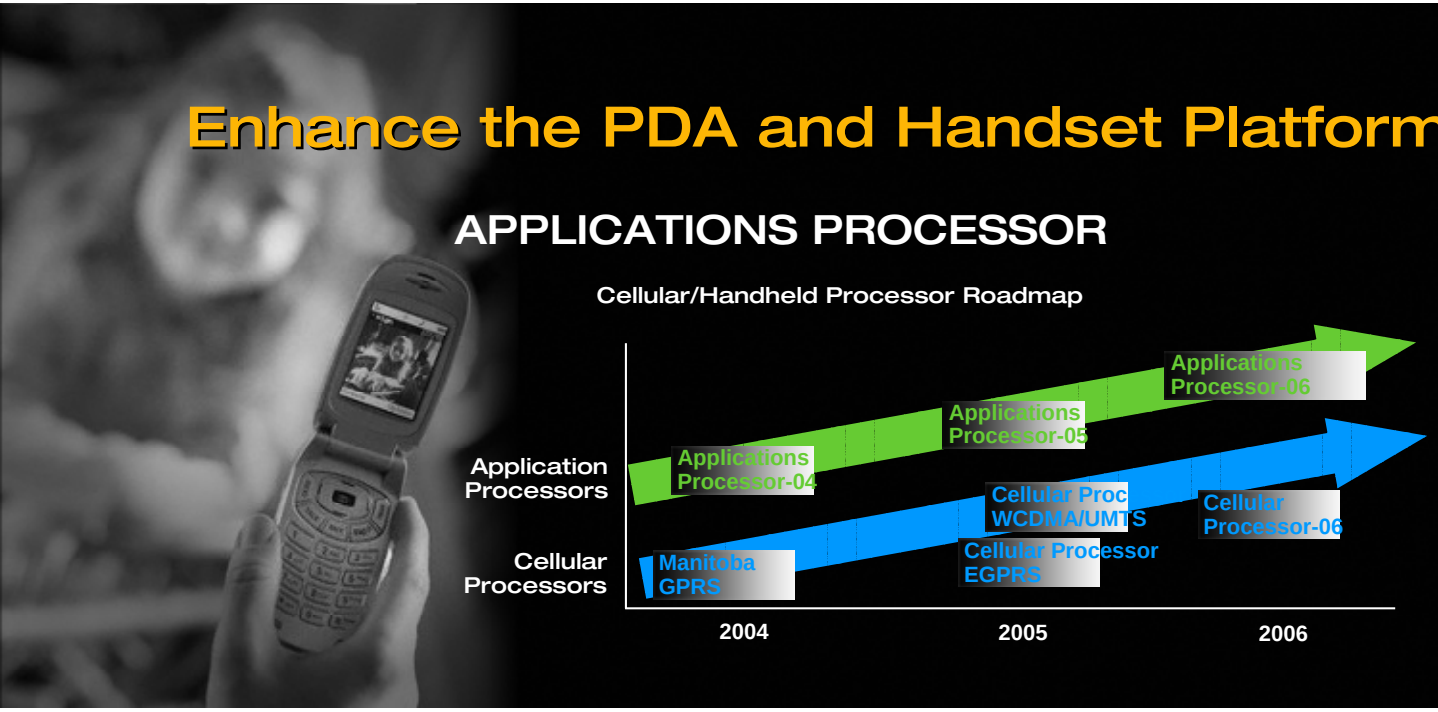
* Relative bits per wafer


Enhance the PDA and Handset Platform:
Memory
Applications Processor and Graphics
Communications Capability
Radio

Carbonado
intel
3-D Multimedia ACCELERATOR
for Handhelds...
Ships in Q1'04

Carbonado
DEMO
Carbonado
DEMO

Enhance the PDA and Handset Platform:



Enhance the PDA and Handset Platform:
Memory
Applications Processor and Graphics
Communications Capability
Radio

Enhance the PDA and
Handset Platform:
GSM
Wi-Fi
3G

Enhance the PDA and Handset Platform:

Handheld Wi-Fi in ’04:

- Highest Throughput 802.11g + Bluetooth
- Lowest Power
- Smallest Real Estate

* Other names and brands may be claimed as the property of others.

Enhance the PDA and Handset Platform:

Memory

Applications Processor and Graphics

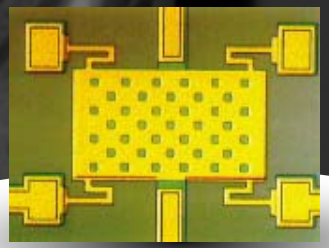
Communications Capability

Radio

Enhance the PDA and Handset Platform:

Radio

Technology



Enhance the PDA and Handset Platform:

Intel Multi-Chip Module Using MEMS Technology

Enhance the PC and Notebook

- Compatibility
- Reach
- Performance
- Battery life

Challenge #2:

Modular,
STANDARDS-BASED
networks.

Modularity Happens

ATCA Market to hit $20 Billion by 2007

Comms Design
January 5, 2004

Iskratel has chosen a modular, open-standards-based hardware platform from Intel for a softswitch that serves as the "nerve center" of its next-generation platform for Class-4 and Class-5 telecommunications services.

Madrid
October 16, 2003

Generation Pilot System Based On Intel's Modular Communications Platform

Seoul, Korea
December 15, 2003

NEC to Launch World's First, Advanced New Platform for Mobile Operators Employing Advanced-TCA(TM)

September 10, 2003

* Other names and brands may be claimed as the property of others.

2003

* Other names and brands may be claimed as the property of others.

www.asi-sig.org

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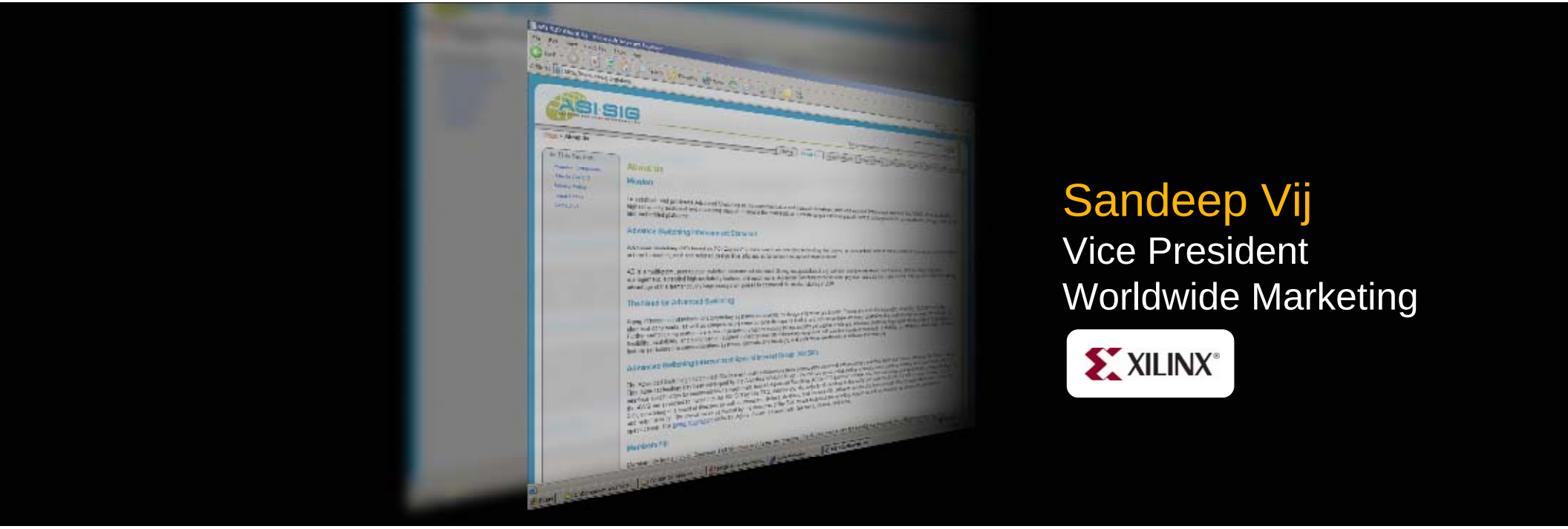
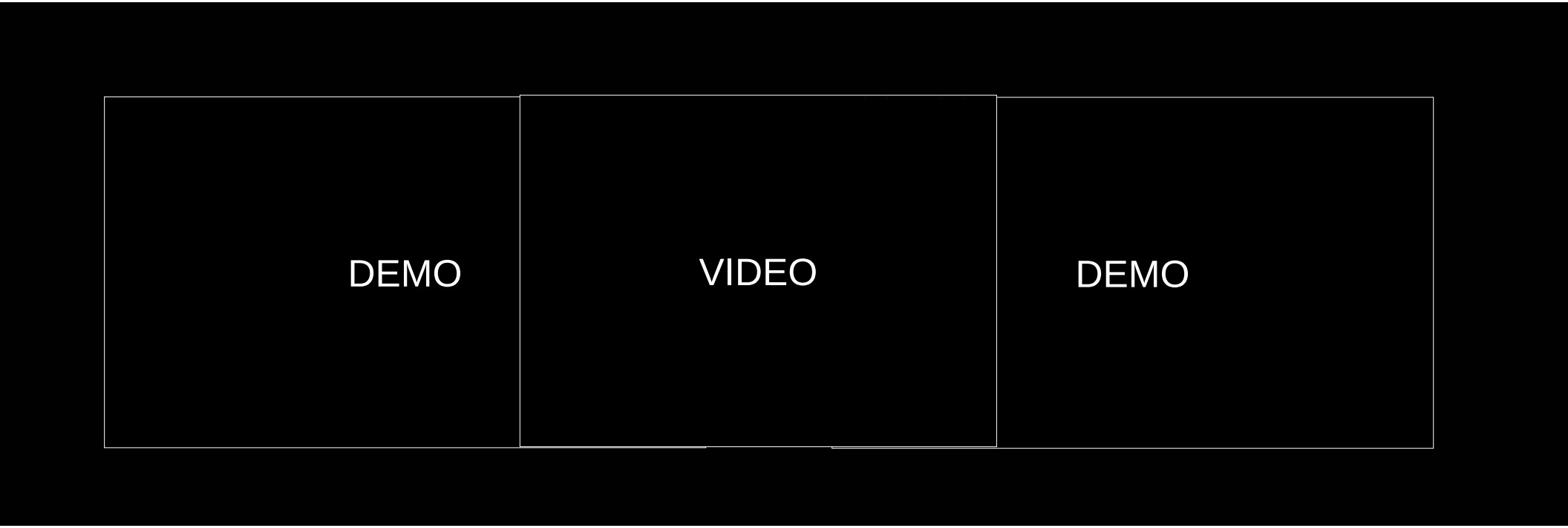
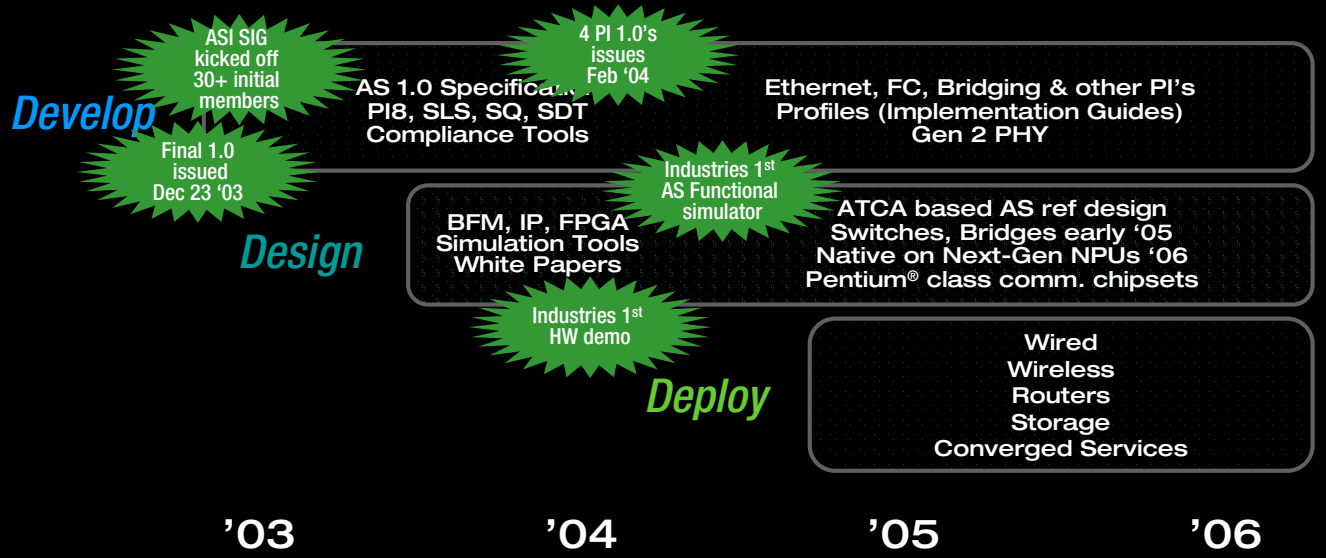


Sandeep Vij
Vice President
Worldwide Marketing

XILINX®


DEMO
VIDEO
DEMO

Advanced Switching Industry Rollout



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The Network Processor

"…Intel from fourth place…to first place in the first half of 2003."

"…strong growth by Intel amidst a mostly flat market from 2002 to 2003 exemplifies the importance of having a strong ecosystem..."

In-Stat MDR

January 26, 2004

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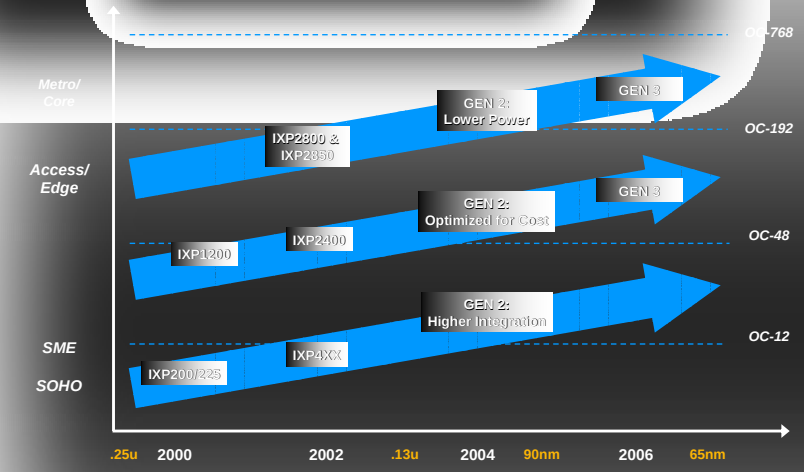
The Network Processor

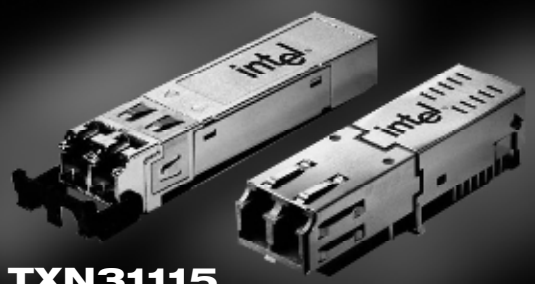


Intel's Efforts In 10G

- Next Generation Switch Silicon
  - 90nm: 4-6 chips into 1 with mixed signal capability
  - Network connectivity optimized for blade servers
  - Multiport Gigabit with 10 Gigabit Uplinks
- Second Generation 10 Gigabit Server Adapter
  - Catalyst for 10 Gigabit to the data center
  - Cost-setter Intel Multimode Optics Module
  - Standard PCI-X slot, low power, cost effective
- Products launching later this year

New 4Gbps Optical Transceivers

- Doubles speed of Fibre Channel SANs without raising cost
- Compliant with SFF and SFP MSAs to speed time to market – compatible with today's 1G/2G networks
- Sampling now
- Production in 2H'04



TXN31115

TXN31015

Challenge #3:

Build the Next Generation Wireless Infrastructure

* Other names and brands may be claimed as the property of others.

Countries with > 50% Broadband Deployment

WiMAX* Vision – Outdoor Install (1H'05)

Business Access & Backhaul

Premium Residential Service

802.16REVd

Hotspot Backhaul

* Other names and brands may be claimed as the property of others.

WiMAX Vision – Indoor Install (2H'05)

* Other names and brands may be claimed as the property of others.

WiMAX Vision – Portability ('06)
Wi-Fi
Business
Access &
Backhaul
802.16e
centrino
Wi-Fi
Consumer
Broadband
Access
Wi-Fi
Wi-Fi
Wi-Fi
Wi-Fi
802.16REVd
Hotspot
Backhaul
wimax
Wi-Fi
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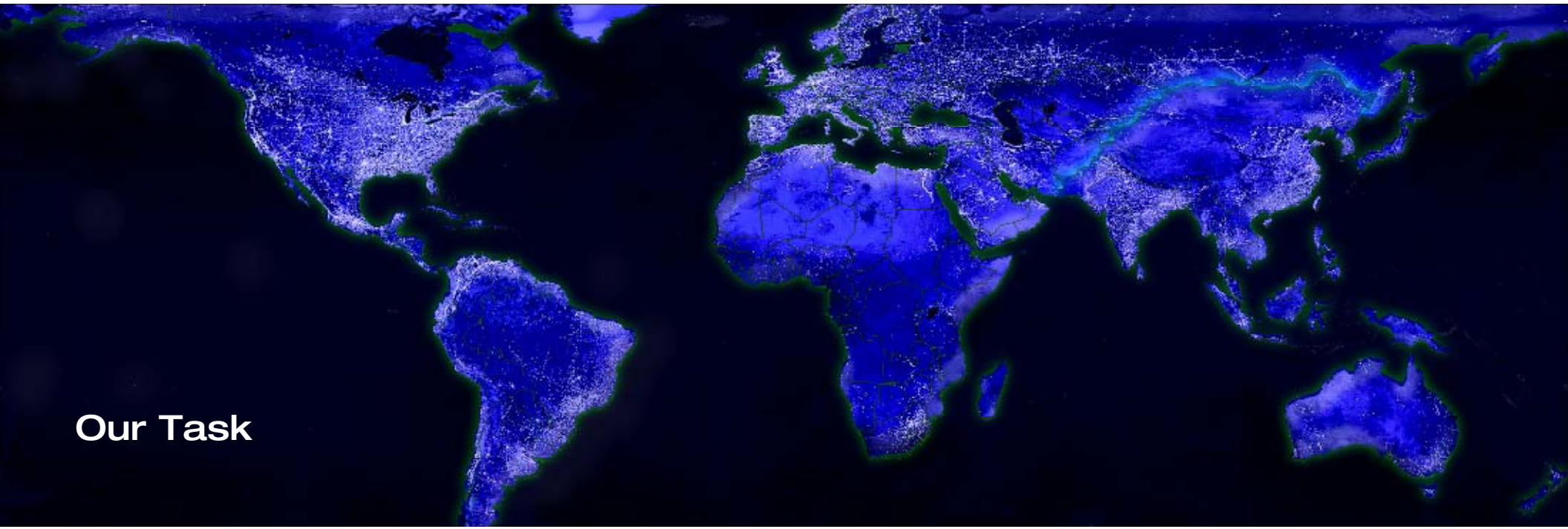
Countries with > 50% Broadband Deployment



Our Task

Intel
Developer
Forum

Intel
Developer
Forum