The end of the PC era?!

Embedded Computing Conference
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Christof Zogg, Director Developer & Platform Group
Embedded Systems Everywhere
Embedded Touch Systems
Much Cooler Embedded Devices
Embedded Penguin
Agenda

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Chapter 1/2

A World of Devices
The End of the PC Era?

The Post-PC Era Has Arrived
Global smartphone, tablet and PC shipments (in millions)

- Portable PCs
- Desktop PCs
- Smartphones
- Tablets


Forecast data
Source: IDG
Device Sales per Year

PCs/Tablets
- 100’s Millions
- IDC, Gartner

Phones
- Billions
- IDC, Consumer Electronics Association

Embedded devices
- 10’s Billions
- VDC market reach, IDC
50
Billion connected devices by 2020
Embedded Trends
Technology Trends

Cloud Computing
Data Explosion
Social Computing
Ecosystem Of Computers
Consumerization Of IT
Ubiquitous Connectivity
Natural Interaction
Intelligent Systems

Embedded Trends
Definition Intelligent Systems

An intelligent system enables data to flow across an enterprise infrastructure, spanning the devices where valuable data is gathered from employees and customers, to the back-end systems where that data can be translated into insights and action.
The Power of an Intelligent System

Operational Intelligence
Intelligent devices capture data and enable informed decision making at the point of impact.

Data Explosion
Information flows to a company’s back-end systems where it is processed and analyzed.

Business Intelligence
Data is transferred into new insights that can be used to create value and improve customer, employee and partner interactions.
Intelligent Systems = Big Opportunity

Total Embedded Universe
Embedded Universe w/o PC & Phones
Intelligent Systems

Unit: 7.6B (CY11) → 12.2B (CY16) units ~ 9.5% CAGR
Unit: 6B (CY11) → 9.6B (CY16) units ~ 10.1% CAGR
Unit: 1.5B (CY11) → 2.6B (CY16) units
Device Revenue: $649B (CY11) → $1.4T (CY16) ~ 16.6% CAGR

Source: IDC Intelligent Systems Pave the Way to a Smart World (February, 2013)
Key Attributes of Intelligent Systems

- Foundational: Connectivity, Security, Identity
- Advanced: Manageability, User Experience, Analytics
Industry Solutions

Embedded Trends
Evolution of Point of Service Devices
Industry Verticals

Retail

Health

Manufacturing

Financial Services
Banking “Branch of the Future”

Customer Challenges
- Differentiate with technology as a competitive advantage
- Need to increasingly empower customer self-service
- Desire to re-imagine modes of retail banking

Customer Benefits
- Increase differentiation in the branch experience
- Align branch experience with other interaction modes/channels
- Increased interaction personalization for customers
Rich UX Experiences

Embedded Trends
High Profile Embedded Systems

Heutiges Thema: Menüführung des SBB Billett-automaten
State of the Art
Small Footprint, Big Graphics

1GHz Arm A8 core
512MB RAM
From GUI to NUI

Microsoft Research

NUI: Natural User Interface

Technology is becoming more natural and intuitive. People already use gesture and speech to interact with their PCs and devices; such natural ways to interact with technology make it easier to learn how to operate them. Our Natural User Interface (NUI) collaboration projects focus on facilitating the use of future computer paradigms by keeping the human user in mind.

Research in action

Highlights

- Kinect launches a surgical revolution
- Information-rich eyewear: Talking to Microsoft's Carenown

Research tools

- Kinect for Windows

Video spotlight

- Functional Contact Lens Monitors Blind Student’s Visual

More tools
Summary

Chapter 3/3
Extending Windows to Specialized Devices
Windows Embedded Editions

- Windows Embedded 8 Standard
- Windows Embedded 8.1 Pro
- Windows Embedded 8.1 Industry Pro
- Windows Embedded Compact 2013
- .NET Micro Framework
Platforms, Toolsets and Frameworks

Consistent experiences for your offering development

Platforms
- Hardware Ecosystem
- Operating System
- Azure/Amazon/Rackspace
- Sharepoint
- SQL/Oracle
- Exchange

Toolsets
- Visual Studio
- Blend for Visual Studio

Frameworks
- .NET for Windows
- .NET for Windows Phone
- .NET for Windows Server
- .NET for Windows Azure
- .NET for Windows Compact
- .NET Micro Framework
ICES Engagement

The Microsoft Innovation Cluster for Embedded Software (ICES) aims to develop embedded technology software solutions and prototypes that will reflect future innovative products and services that will be commonplace beyond 2020. Started in 2006 and already running for five years Switzerland’s top two universities of technology invited submissions for innovative research projects in the field of embedded software specifically targeting innovative applications that will improve many aspects of daily life.

The aim of ICES is to foster close cooperation and knowledge transfer between the universities and the private sector (Microsoft as well as other industry partners). Microsoft wants to actively support upcoming youth and education in Switzerland and contribute widely to cutting-edge ICT research.

The first round of ICES has now completed with seven highly successful projects concentrating on security, reliability, powerful computer processing and Human Computer Interaction.

Their brief titles follow:

- EPFL: ProgLab.NET: Quality / Reliability of Embedded Software
- EPFL: Failure Immunity for Embedded Software in Consumer Devices
- EPFL: Soft Integration of Hand Real-Time Capabilities in CR
- EPFL: Efficient symmetric cryptographic capabilities for emb. devices
- ETHZ: Supercomputer in the Pocket
- ETHZ: A Virtual OSGi Infrastructure for Embedded Software Systems
- ETHZ: Multi-Object Motion Grouping for Embedded Computer Vision

Now ICES Round 2 has begun, and five projects have been given the green light, whereas Round 1 projects concentrated on...
Besten Dank für Ihre Aufmerksamkeit