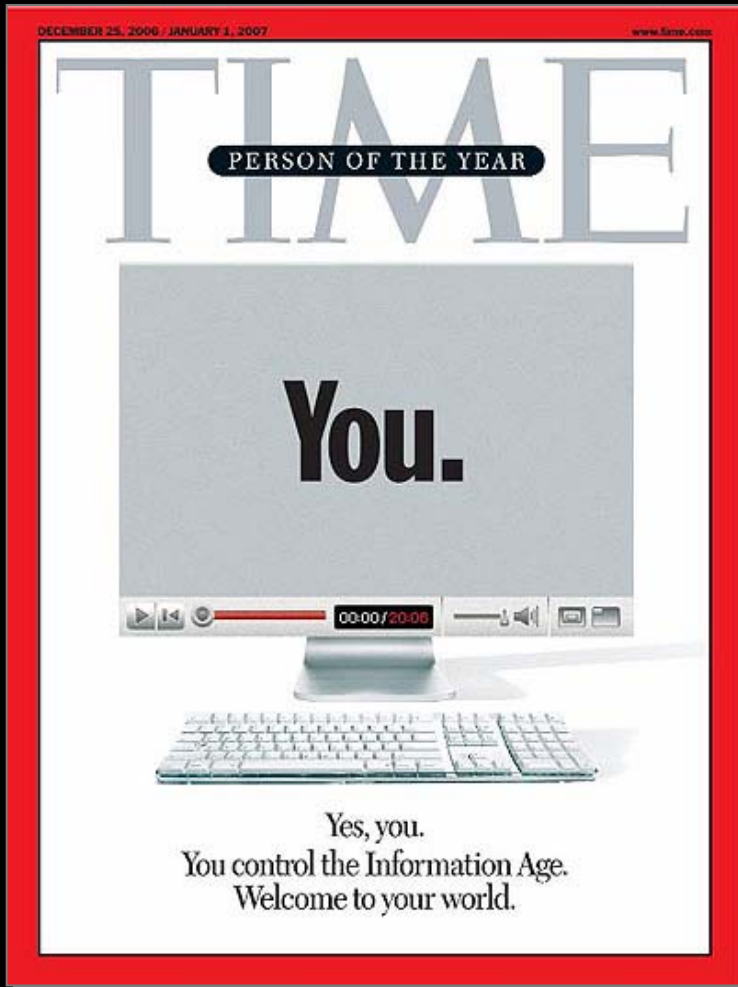# The Network as the Platform: The Digital Revolution is Now!

**Monique Jeanne Morrow**

**Distinguished Consulting Engineer**

**June 21 2007**

# The Impact of Web 2.0 Is All Around



PERSON OF THE YEAR

**TIME**

DECEMBER 25, 2006 / JANUARY 1, 2007

You.

Yes, you.
You control the Information Age.
Welcome to your world.

**"You are no longer in control. The consumer has the power."**

**Peter Weedfald,
Senior VP
Samsung Consumer Electronics**

Source: *Time*, January 2007

# New Creators & Consumers of Video Entertainment


**Consumer**


**Prosumer**


Mission Impossible 3
**Professional**

## NETWORK AS THE PLATFORM


Mission Impossible 3
**PC**


Mission Impossible 3
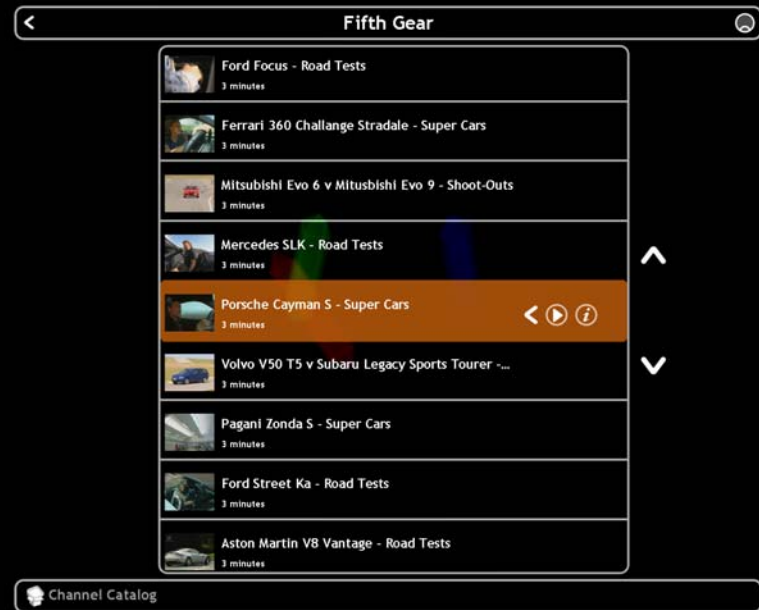**Home TV**


Mission Impossible 3
**Smartphone**

# *Joost* *(from the creators of Skype/Kazaa)*

**January 19, 2007**

Two poster dudes for file-sharing and VoIP innovation have finally branded their foray into Web TV. Niklas Zennström and Janus Friis, the founders of Kazaa and Skype, unveiled **Joost** this week as the official name of the 'Net video experiment up to now referred to as "The Venice Project."

Currently in beta testing, Joost is being pushed as a service that combines "the best of TV and the best of the Internet." Unlike YouTube, Joost will not offer user-generated content, but streaming content from established providers.

- **Free of charge to Users, Ad sponsored.**
- **Content from: Nat Geo, Viacom, JumpTV, CBS, WCSN, ...**
- **Advertising partners include CocaCola, HP, Intel, Microsoft, Nike, Nokia, Vodafone, P&G, Nestle, Unilever, ...**
- **Streaming at 700Kbit/sec download, 0,32GB/hour & 220Kbit/sec upload, 0,105GB/hour)**
- **1000's of Channels planned.**
- **Rich Search, Navigation... Chat, Rate**
- **P2P runs at deficit (download > upload), Joost will make up for the missing capacity with distributed data centres.**

**Fifth Gear**

| Ford Focus - Road Tests | 3 minutes |
| Ferrari 360 Challange Stradale - Super Cars | 3 minutes |
| Mitsubishi Evo 6 v Mitsubishi Evo 9 - Shoot-Outs | 3 minutes |
| Mercedes SLK - Road Tests | 3 minutes |
| Porsche Cayman S - Super Cars | 3 minutes |
| Volvo V50 T5 v Subaru Legacy Sports Tourer -... | 3 minutes |
| Pagani Zonda S - Super Cars | 3 minutes |
| Ford Street Ka - Road Tests | 3 minutes |
| Aston Martin V8 Vantage - Road Tests | 3 minutes |

Channel Catalog

# Channel Extensions
## *BBC, Linear TV and VoD*



**Seven day TV catch-up over the internet**

4. The proposed on-demand catch-up facility will give audiences access to the BBC's linear television schedule where rights costs allow. It will be principally organised around a seven day window from the point of original broadcast.

**Simulcast TV over the internet**

9. This will provide UK audiences with the ability to watch the BBC's existing television channels. Simulcast TV over the internet will be provided via multicast streaming

**Non-DRM downloads over the internet**

10. The provision of audio programmes and material related to audio programming (with the exception of full track commercial music) without Digital Rights Management (DRM) protection alongside the existing seven day on-demand audio service, where the rights holders agree that this form of distribution is appropriate. Removing DRM restrictions allows a broader range of devices to access the material, extending audience choice around where and when they consume BBC programming.

11. The three internet-based offerings will be combined into a direct-to-consumer offering, BBC iPlayer version 1.0[4], which will incorporate all the existing BBC players and consoles under a consistent user interface and brand[5]. In summary, BBC iPlayer version 1.0 is designed to unify the BBC's provision of audio and video content on-demand and to make it available to UK audiences over the internet.

- **BBC is now a Global ISP**

  They PEER rather than PAY for Internet Access (~500 Peers in UK, NL, DE, US...)

- **BBC iPlayer is based on P2P**

  Seven day TV catch-up and BBC archive are distributed using P2P Technology.

- **BBC Simulcast requires Multicast**

  Only ISP's who provide Multicast Peering to BBC are eligible for Internet Simulcast.

- **Significant Traffic Surge**

  +3GB/User/Month => 400+M£ cost for ISP's (OFcom)

# VoD Streaming, moving to "HD"
## *based on HTTP/Quantum streaming from Move Networks and VP7 codec*

**ABC.COM MAKES WATCHING TV AT WORK BETTER**
By **David Carnoy** – April 2, 2007, 1:35 PM PDT

Among the networks, ABC.com has been one of the most aggressive in terms of streaming full versions of its shows online after they've aired on TV. During those quieter moments at work--some call them smoking breaks without the smoking--you can watch episodes of *Lost*, *Grey's Anatomy*, *Ugly Betty*, and more, right on your computer screen. Until a few days ago, however, the picture was rather small. Now ABC.com has launched a new full-screen "HD-quality" video player, and the "broadcast" looks shockingly good.

Meanwhile, NBC also has spruced up its online video player, and it, too, has added a full-screen option. The big difference is that NBC's video player uses Adobe's Flash Video, while ABC's is built on technology from upstart Move Networks.

During a "break," CNET editors John Falcone and Matthew Moskovciak huddled around my 19-inch Sony monitor in my office for a quick look at a recent *Lost* episode and were duly impressed. The picture may not quite measure up to true hi-def, but step a few feet back, and you're looking at a very detailed, sharp image. It's the kind of moment that makes you think that someday you'll be able to ditch your cable or satellite provider and get your content from cheaper sources that also happen to be legal. What a concept.
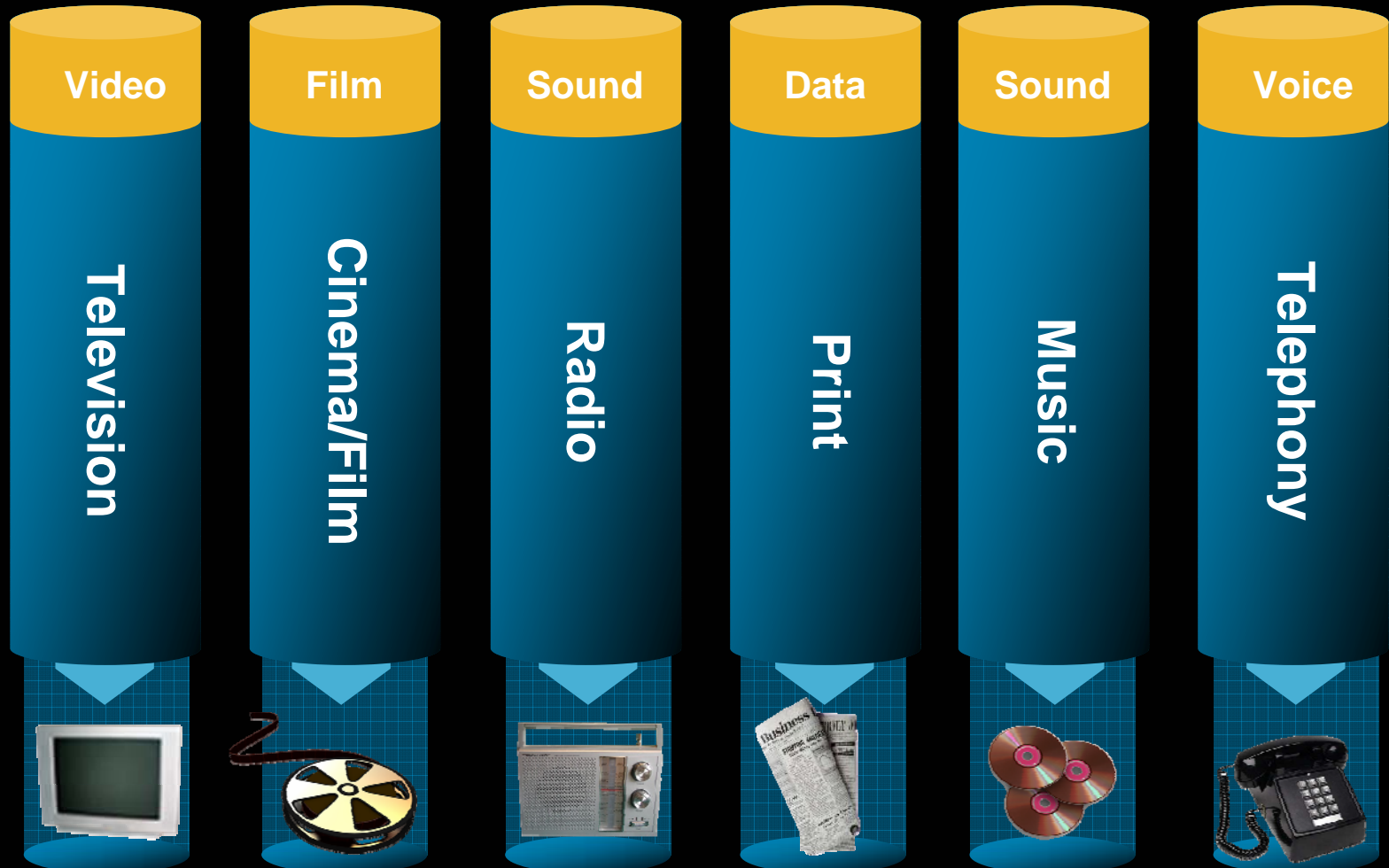
*Lost* looking good online.

- Applet in Browser.
- HTTP, Quantum streaming from standard Web Server.
- Many parallel TCP sessions for efficiency
- Free-of-charge CDN, Video/Web pages cached by many ISPs..
- Also cached on Client PC (eases replay).
- VP7 codec only requires 2/3rd of MPEG4 bandwidth.
- Can deliver, 1280*720p, 24fps resolution between 0,85-2Mbit/sec.
- Dynamically adapts playout resolution to bandwidth availability.
- Provides very detailed viewing reports based on Client Software (advertisers)

# The Digital Revolution in Entertainment

**Yesterday**



| Video | Film | Sound | Data | Sound | Voice |
|---|---|---|---|---|---|
| Television | Cinema/Film | Radio | Print | Music | Telephony |

# The Digital Revolution in Entertainment

**Today**

**TV, Film, Music, Print …**

**Digital**

$

**Global IP Network
The Internet**

# The Revolution is Causing a Shift in Perspective: Copernicus Was Right



**Consumers**

**Distribution**

**Studios**

# The Entertainment Model Must Evolve
## The Implications of Moving from Analog to Digital Distribution

### Digital

- Personal distribution
- Channel fragmentation
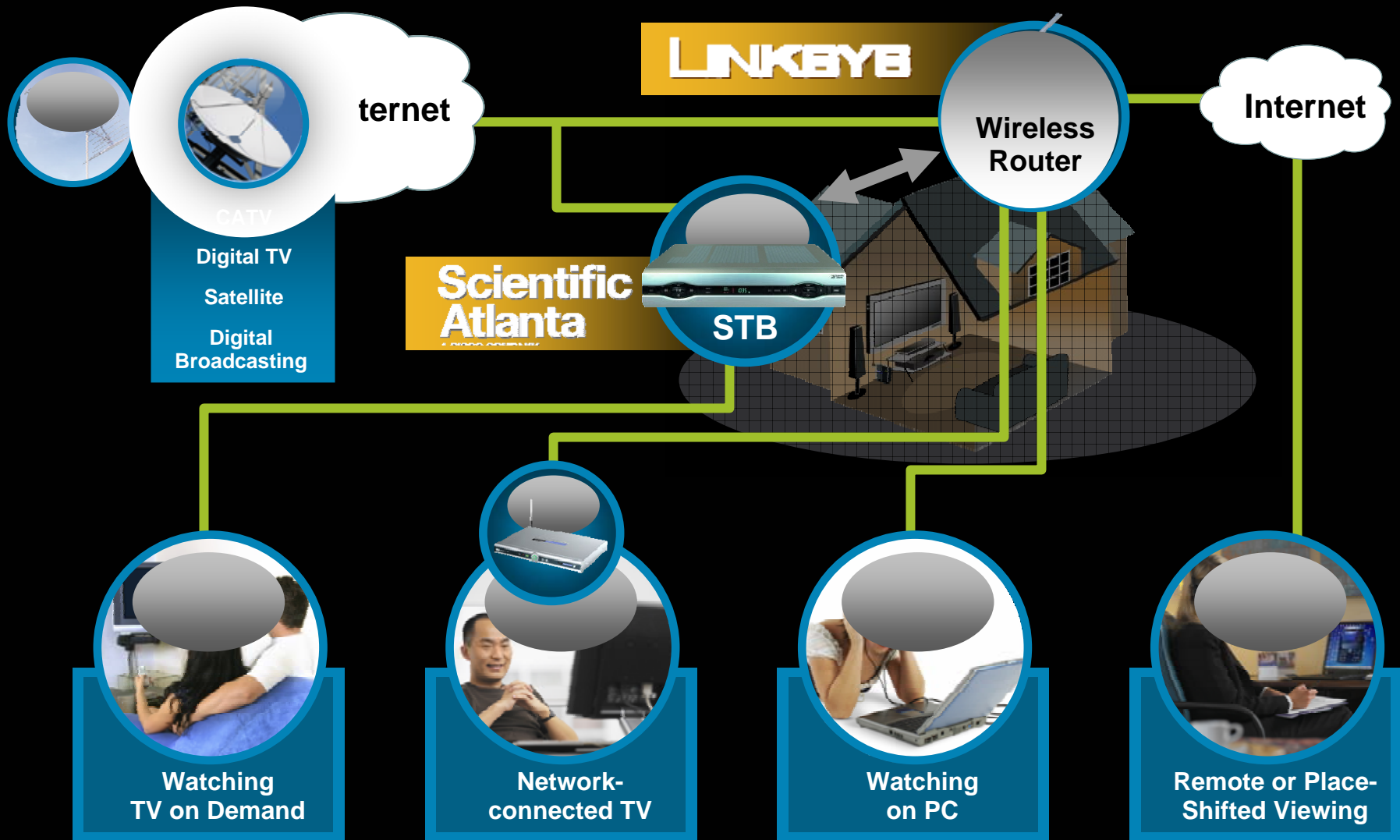- **More** content
- **More** devices
- The venue of **your** choice

**Consumers**

### Analog

- Mass distribution
- Control the content supply
- Limit the devices/venues
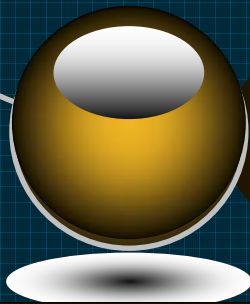
**Studios**

# Sharing Digital Entertainment in the Home



ternet

LINKSYS

Internet

Wireless Router

CATV

Digital TV

Satellite

Digital Broadcasting

Scientific Atlanta

STB

**Watching TV on Demand**

**Network-connected TV**

**Watching on PC**

**Remote or Place-Shifted Viewing**

# Content Delivery Services
## Content at Your Fingertips

# Summary

- **Consumer is center of the digital universe**

- **The Network key platform for content distribution**

- **The Digital Revolution is now!**