



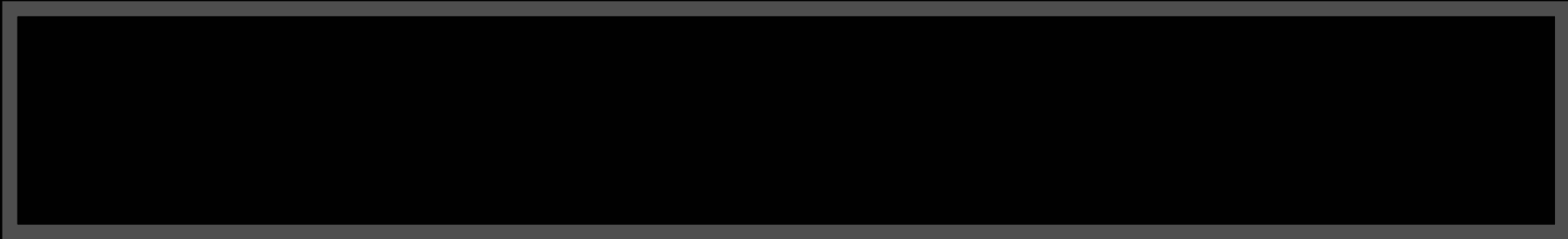
NMC Seminar update, Geneva, June 2006

**“Life, the Universe and the NMC!”**

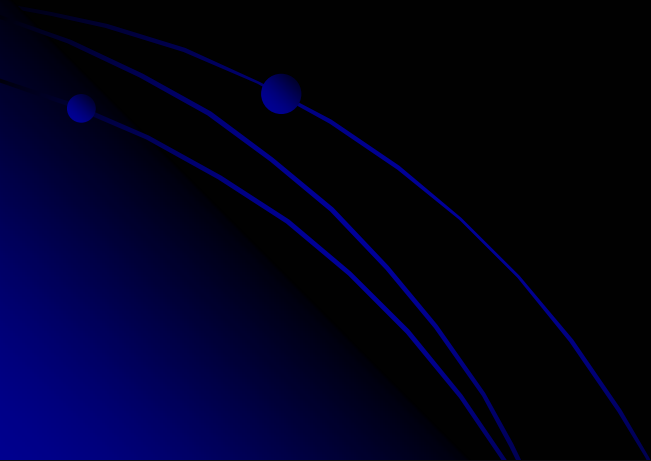
**Rhys Lewis, BBC**

**Chairman**

**EBU Network Technology Management Committee**



**Life, ...**



# Networks and technology with everything...

- “The most important change facing the BBC in the coming decade will be the transition from broadcasting to on-demand as the way much, if not most, of our content will be consumed.”
- “...but what unites all the [BBC change] themes, apart from the notion of great content, is the role that technology will play inside the BBC, and how important it is that we all embrace it as a creative enabler and a creative resource.”
- “We don’t just want to be on the Web, we want to be part of the Web”

Mark Thompson, BBC



**...the Universe, ...**



# Mapping the networked universe...

- ...mergers, acquisitions and alliances
  - ITV buys Friends Reunited
  - News International buys mySpace.com
  - eBay and Skype
  - NTL and Virgin (“fourplay in the UK”!)
- ...experimentation and user involvement
  - Podcasts, broadband media players (e.g. BBC’s iPlayer)
  - Blogs, vblogs (Rocketboom.com)
  - Local broadband TV channels (broadcasters & newspapers)
  - Amazon’s Mechanical Turk (mturk.com) - and what on earth’s going on at Sheepmarket.com?!



# User Generated Content

- ... a dramatic growth in User Generated Content (aka Citizen Journalism):
  - BBC now have a 'citizen journalist' in each of the 25 EU states to comment on key events (UK elections, EU budget crisis, ...)
  - London bombings in July 2005
  - Buncefield fuel-depot fire; April 06 floods
  - [www.uontv.com](http://www.uontv.com), [www.myspace.com](http://www.myspace.com), [en.wikinews.org](http://en.wikinews.org)
  - Bluffton Today, 3's See Me TV
- Are we, as broadcasters and the EBU, sufficiently engaged with this new world and its opportunities?



# Media players – BBC iMP



# iMP...

- A BBC-branded player providing broadband access to BBC content for up to 7-days after broadcast
- Select/Download/Licence/Play model
  - Selection via EPG – up to 7 days either side of transmission
  - Immediate or pre-programmed download of items using peer-to-peer model
  - Machine licence delivered from central control point
  - Unlimited plays within 7 days of broadcast



# iMP Pilot

- Four month trial with 5000 users ended in Feb 06
  - 180 hours of TV content (included some HD content) plus 300 Radio shows per week
  - Viewable in UK only
  - Microsoft Media player and Digital Rights Management
  - Kontiki peer-to-peer distribution
  - Red Bee/Autonomy ingest, search & recommendations



# iMP in action

**B B C** iMP

# iMP pilot - Results

- Very positive response from trialists
- Some disquiet at length of download times and beta nature of software
- 150,000 downloads – 2:1 TV to Radio
- Only 50% of downloads viewed (due to 7-day limit?)
- Peak viewing time – 22:00 to 23:00 hrs with an average viewing time of up to an hour
- 5 top titles accounted for 25% of downloads but 85% of all titles downloaded – long-tail effect
- Similar proportions for TV and Radio downloads



# iMP future

- Aims to launch late-2006 subject to public-value tests.
- Working title – BBC iPlayer
- This will bring together iMP trial model, live TV and archived material and provide a unified approach across many current BBC players.



# The key issues...

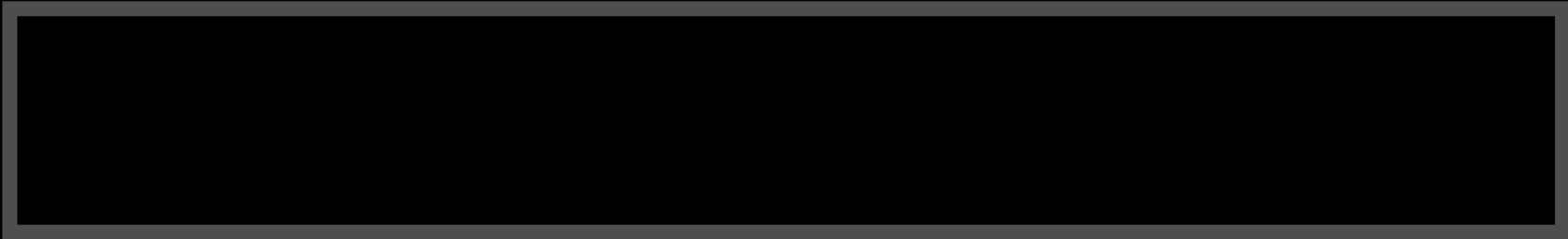
## Work on:

- Standards/formats/quality
- Metadata (& Identification)
- Security & Control

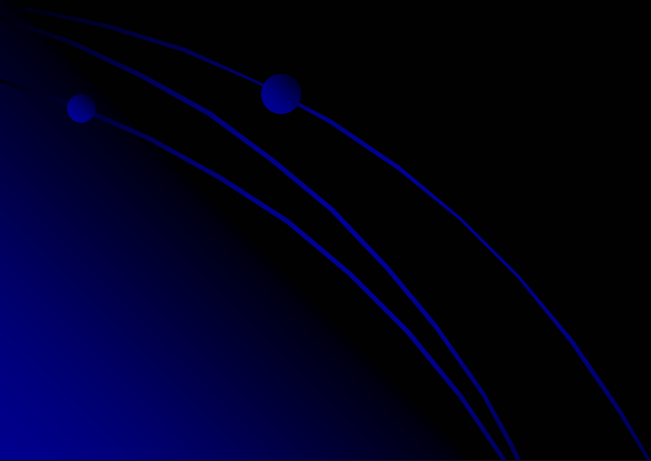
## Be aware of:

- A host of non-technical issues – e.g. legal, rights, ... & public safety!
- Business models & opportunities – [www.scoopt.com](http://www.scoopt.com), “send to my favourite TV station” button?, ...
- Mediation & trust!





**...and the NMC!**



# ...and the NMC!”

- Interpreting network technologies and their impact for members
  - Understanding the strategic and technical impact of new developments (mainly contribution networks)
  - Supporting and standardising new uses
  - Educating and informing
- Advising on Eurovision & Euroradio networks and operations
  - Through our working relationship with the Operations Division and Assembly of Contact Engineers (ACE) – clarified this year.
    - NMC 🖱️ Advise on technology and technology-related service issues
    - NMC 🖱️ Identify and evaluate new technology opportunities and solutions



# Eurovision update

Notable events from the last year...

- Major refresh of video transmission and reception equipment at 55 satellite earth-stations.
- Implementation of BISS-E encryption regime – a satisfactory outcome to some earlier work by NMC.
- Upgraded supervision software installed across the network (DREAMS2 FiNE) with more flexible management and control over satellite and fibre network.
- FINE fibre network extended to link Moscow, Lisbon, Los Angeles and Japan to the 12 existing US and European sites.
- Non-member traffic (increasing) now matches member traffic (decreasing).





# New Services - N/ACT update

## N/ACT – Anders Nyberg (SVT)

- Optimising satellite performance
  - Use of DVB-S2 (25% capacity increase)
  - Transponder operating point
- A replacement coding and modulation scheme for Euroradio
- Supporting the development of a new strategy and architecture for Eurovision



# New services – N/HD-NET

## N/HD-NET – Tony Richey (BBC/Siemens)

- ISOG interoperability tests on HD codecs
  - Improving but audio issues remain
    - Mainly latency (up to 1.5s) and lip-sync
  - Availability of 720p/50 equipment improving
  - Manufacturers to include interoperability test for new releases
- Recommendations for contribution bit-rates (inc. World Cup rates)
  - MPEG-2: 40Mbit/s gives good quality; 55Mbit/s quasi-transparent
  - DVB-S2/MPEG-2 4:2:2 @ 55Mbit/s shown to work in 36MHz transponder
  - No credible HD contribution solution based on H264/AVC
    - MPEG-4: Real-time coders poor below 12Mbit/s and above 15Mbit/s
    - Quality optimisation work struggling due to poor equipment performance – coders and standards converters



# Metadata issues...

Metadata group – Tony Richey (BBC – Siemens)

- Exchange set standards
  - WBU-ISOG set for international exchange concluded and additional fields added into P/Meta
  - Work on News exchange set underway

# Identifiers update...

N/Ident – No chairman!

- No interest!
- No work!

# Security...

## N/Security – Andy Leigh (BBC)

- Information Security tutorial published in the July 2005 EBU Technical Review
- ‘Universal solution’ guideline close to publication
- Contributed to EBU SuperPoP solution
- Recommended that the EBU join the Information Security Forum on behalf of its members – of interest?
- Will now be re-formed as an ‘Experts Group’
- Contributing to TC “policy guide” on Security



# File transfer...

## N/FT-AVC – Markus Berg (IRT)

- Developing file-transfer guidelines – to be published later in the year
  - Partly based on questionnaire results
  - Will incorporate market survey information
- A key conclusion:

The technology's the easy bit by comparison with the business issues - integration into the production environment, workflows, ...?



# File transfer...

## N/WAN – Markus Berg (IRT)

- WAN Roadmap in development (guide to WAN technologies) including market survey information
- Published later this year
- Will then look at impact of new services (e.g. HD) and the role of “traffic engineering” for media
- No dominant technology – different needs demand different solutions.



# Monitoring & Control...

## N/CNCS – Chris Chambers (BBC)

- Contributing to IEC standardisation of production and broadcast plant control
- Solution based on existing standards - SNMP (Level 3)
- Part 1 contribution (Common Control Interface) input
- Work on Part 2 (Audio Control) and Part 7 (Transmitter Control) under way





# New work (1)...

- Signs that ISDN services will cease in some few years (in some few countries?)
- No current viable alternative - although “audio over IP” is an obvious candidate
- Some issues with ISDN which we should try and avoid with any replacement solution (e.g. codec interoperability).
- N/ACIP formed, chaired by Lars Jonsson of SVT to:
  - Investigate and advise on alternative approaches which can provide an acceptable QoS for broadcast contribution use
  - Recommend work needed to facilitate implementation
  - Encourage standardisation of approach (coding, signalling etc.) drawing on developments in the IP-TV and VOIP arenas



# New work (2)...

- EU push for the implementation of IPv6 (old NMC work in reality!)
  - Some points which may be of interest to broadcasters...
    - Enhanced multicast support (?) – the efficient way of delivering live content (BBC/ITV trialling multicast delivery in the UK)
    - Better Quality of Service (QoS) handling ?
    - IP mobility ? - a better way to follow audiences
- EU funding generating considerable interest in network Grid technologies – a foundation for a new “service-based” infrastructure?
- “Deep packet inspection” being employed by ISPs to slow down network traffic (e.g. P2P, VOIP traffic) – how will this impact broadcaster use?
- Are we, as a community, sufficiently involved with this new world of opportunities and constraints?



# ...and a new way of working?

- [http://wiki.ebu.ch/technical/Main\\_Page](http://wiki.ebu.ch/technical/Main_Page)
- Access with your EBU Lounge login and password
- It's time we exploited the power of our networks...get involved, get your people involved!
- And do tell us what works for you...and what doesn't!!



# A new way of working...

- The BBC's first live news insert over broadband.
- A correspondent, a camera, a laptop + video card + H.264 app (which claims HD at 256kbit/s!) and an Internet connection (plug or wi-fi)...



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# A recent example...

- A recent forest-fire at Canford Heath in Dorset, UK
- "We have actually got some pretty dramatic pictures our viewers have sent in..."

