3rd Annual International Telecommunications Synchronisation Forum

17th - 19th October 2005, IEE Savoy Place, London

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Day 1: Tuesday 18th October 2005

SESSION 1. OPENING SESSION

09:00 Opening Remarks from the Chair

Charles Curry, Managing Director, **CHRONOS TECHNOLOGY,** UK

09.05 Synchronisation Networks Today and Tomorrow

- Synchronising networks across multi technology and multi operator environments
- The impact of poor synchronisation in this scenario
- QoS and sync availability standards
- Future developments

Andy Reid, Chief Network Services Architect, **BT**, UK

09.30 Keynote Panel Discussion: The Business Case For Sync

- Regulatory viewpoint on the impact that poor sync might have on networks, operations and QoS
- Technical side's viewpoint
- Users' and manufacturers' opinions

Gurdip Jande, Senior VP, Telecom Systems Marketing, **SYMMETRICOM,** USA

Andy Reid, Chief Network Services Architect, **BT**, UK

Charles Curry, Managing Director, **CHRONOS TECHNOLOGY,** UK

Andy Sutton, WAN Specialist, **THREE, UK**

10.00 Classic Wireline Network Core Sync Architecture

- An overview of the evolution of classic wireline sync network concepts
- The possible impact that a migration to a packet based architecture might have on legacy services
- Case study examples

Goran Pjevac, Telecommunication Equipment Specialist, **TELECOM SERBIJA,** the Republic of Serbia

10.30 Refreshments

11.00 Classic Wireless Network Sync Architecture

- An overview of classic wireless sync network concepts

- The possible impact that packet based network last mile delivery may have on sync in the access layer
- Case study examples

Speaker to be confirmed**, AMENA**, Spain

11.30 Hot Topic: Sync In Packet Networks And Activities In Standardization

- How the deployment of packet network technologies is challenging the task of delivering good reference timing signals
- The problems associated with new services such as VoIP and convergence of IP and CBR services into the same transport delivery medium
- How are these issues covered in existing standards
- How is the network synchronization in packet network going to be covered in new standards
- Main challenges

Stefano Ruffini, Manager, Ericsson Synchronization Centre, **ERICSSON**, Italy

12:00 Questions & Answers

12.15 Lunch

SESSION 2. SYNC AAN NETWORK OPERATIONAL ISSUES

13:30 Opening Remarks from the Chair

Dominik Schneuwly, Senior Engineer, **OSCILLOQUARTZ**, Switzerland

13.35 The Impact of Recent Advances in Optical Networking on Synchronisation

- Deployment of new technologies (in addition to SDH) that are now available in transmission networks:
  - Point-to-point WDM systems; G.709 optical transport networks
  - 10 Gbit/s Ethernet with two types, LAN and WAN
  - MSPP combining TDM and Ethernet interfaces
- The issues raised by this evolution on the transport of timing
- Review of available solutions

Jean-Loup Ferrant, Standardisation Manager & Synchronisation Expert, Optical Network Division, **ALCATEL**, France

14.00 Planning Methods and Tools for Today's Synchronisation Networks

- Practical experience of achieving well-planned and carefully documented synchronisation network designs
- Case study examples on how planning methods improved the efficiency of the design process and led to more consistent synchronisation network designs
- How methods in large networks can be supported by good computer-aided tools

David O'Connor, Managing Director, **HORSEBRIDGE**, UK

Dominik Schneuwly, Senior Engineer, **OSCILLOQUARTZ**, Switzerland

14:30 Network Management

- The need for sync management
- Business case for element management system
- Crucial benefits of sync management over a generic fault management system

Dilip Dhanda, Product Line Manager, Network Management Systems, **SYMMETRICOM**, USA

15:00 Refreshments

15:30 The Case for Synchronisation Performance Management: Manage or Die

- The role of communications and synchronisation
- Performance monitoring and management strategy for early identification of potential synchronisation faults
- Case study examples of pro-active prevention of loss of service

Greg Mason, Technology Lead, Synchronisation & Transport Solutions, **BT**, UK

16.00 Sync as Part of the Service: Service Level Agreements for Synchronization Delivery

- How sync can be supplied as a service
- Will it be provided as an add-on priced service or will it be part of the general service offering?
- Is there a need to transport 3rd party synchronisation?
- Sync monitoring experience
- Putting service level agreements in place
- The latest thoughts on the issues associated with sync service level agreements:

- How to measure performance
- How to define synchronisation availability

Ian Wright, Professional Services Manager, **CHRONOS TECHNOLOGY**, UK

16:30 Panel Session

17:00 End of Day One

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Day 2: Wednesday 19th October 2005

SESSION 3. SYNC IN NEXT GENERATION NETWORKS: USERS AND NETWORKS

09.00 Opening Remarks From The Chair

Martin Kingston, Principal Engineer, **ORANGE**, UK

09.05 Defining Sync Quality in Access Networks, Sync Transport in Next Generation Networks

- Distribution of synchronisation in next generation networks
- New access technologies and the needs of the end user applications
- Can synchronisation be supplied to applications at the edge of the network?

- Will this be part of the general service offering or will sync be supplied as a service to those customers who need it?

Andy Sutton, WAN Specialist, **THREE**, UK

09.30 Sync for Support of Legacy Services

- The impact of new network technology (circuit emulation, VoIP) on legacy services (leased lines, voice, fax, modem)
- Performance requirements of the legacy services' users
- Will some legacy services be unusable over next generation networks?

Kishan Shenoi, Chief Technologist, **SYMMETRICOM**, USA

10.00 Mobile Network Requirements: Manufacturer's Perspective

- Air interface synchronisation requirements of GSM/UMTS/3.9G base stations and the reasoning behind them
- Overview of synchronisation requirements on TDM-based radio access networks
- Implications on migration to packet networks

Antti Pietilainen, Senior R&D Engineer, **NOKIA RESEARCH CENTRE**, Finland

10.30 Refreshments

11.00 Sync for Next Generation Network Equipment

- The needs of next generation network equipment
- Do they need synchronisation and where will they get synchronisation from?
- Why are routers now appearing with sync interfaces on them?
- How will media gateway synchronise?
- What are the implications of not getting the sync right?
- What will be the architecture of synchronisation networks for NGN?

Laurent Montini, Consulting Engineer, **CISCO, France**

11.30 Panel Discussion. Sync in Next Generation Networks: Users and Networks

- The key issues for next generation networks
- What services are most likely to be affected?
- How can sync be provided to address these problems?

12.00 Lunch

SESSION 4. SYNC IN NEXT GENERATION NETWOKS: TECHNOLOGY AND MANUFACTURERS

13.10 Opening Remarks from the Chair

Mike Gilson, Lead Technology Consultant, Synchronisation & Transport Solutions, **BT**, UK

13:15 Technology Options for Sync Delivery in Next Generation Networks

- Main issues in distributing synchronisation in packet networks

- Techniques to enable sync distribution in packet networks
- Performance aspects: the impact of step delay changes, in packet based networks, etc.

Silvana Rodrigues, System Architect, **ZARLINK SEMICONDUCTOR**, Canada

13:45 Circuit Emulation Services over IP/Ethernet

- The synchronisation performance required for circuit emulation systems
- Techniques for synchronisation of TDM circuits across packet networks
- The types of packet networks that TDM circuit emulation can operate over
- Packet network impairments, and their effect on the quality of TDM network synchronisation
- Performance limitations
- Standardisation efforts in network synchronisation for CES

Tim Frost, System Architect**, ZARLINK SEMICONDUCTOR**, UK

14:10 Transport of TDM Synchronisation Information across a Packet Switched Network

- Challenges for TDM synchronisation transport across PSN
- Different approaches to do timing recovery across PSN
- Practical advice on timing recovery
- Results and behaviour of timing recovery in different nets with different loads and traffic

Andreas Zimmermann, IP-Development & Systems, R&D, **PANDATEL AG**, Germany

14:35 Technology Options for Sync Delivery in Next Generation Networks

- The need to transport TDM services over PSNS.
- The challenge of recovering A TDM clock at the far end that meets TDM needs
- Modelling packet delay variations – Gaussian and non Gaussian models
- The challenge of meeting sync requirements
- Exploiting PDV statistics in order to attain conformant MTIE/TDEV wander limits

Alon Geva, Algorithms Team Leader, **RAD DATA COMMUNICATIONS**, Israel

15:00 Refreshments

15.25 IEEE 1588 – Changes to the Standard and Results of Field Trials

- IEEE 1588 current limitations and progress to meet telecom needs
- Results of extensive testing of An IEEE 1588 system in telecom applications
  - Performance envelop testing
  - Equipment testing results with controlled network impairment
  - Field trial testing results from an extensive live network in USA

Dave Tonks, Principle Engineer, **SEMTECH**, UK

15:50 A Quantitative Study of Timing over Packet Networks

- Results of four different commercial vendors circuit emulation services over Ethernet
- Measurements done on a live production network that spans multiple transport technologies
- Analysis of jitter and wander characteristics

- Results showing variable performance under the same network operation conditions conclusions and the key issues to be resolved (protocol for distributing timing; packet network reference models, etc.)

Michel Ouellette, Systems Architect, CRO Office, **NORTEL**, Canada

16.15 Sync over Packet Networks

- Key Issues for Sync over Packet Networks
- Current status
- Challenges to be overcome

Vandana Upadhyay, Senior Director Business Development, **SYMMETRICOM**, USA

16:30 Panel Discussion. Sync in Next Generation Networks: Technology and Manufacturers

- Technology options for providing synchronisation in next generation networks
- The new technologies requiring synchronisation
- Discussion of the for key topics of the whole conference

17.00 Closing Remarks from the Chair

17.05 End of Day Two