Terena Networking Conference 2003

Zagreb, Croatia May 19-22 2003.

Extended Abstract

Title: JANET Network Access and Last Mile Technologies

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Keywords: Network Access, Last Mile, DSL, Satellite, Wireless.

Abstract:

Introduction

This presentation will outline the last mile technology activities that are currently taking place in the UK by UKERNA to broaden the reach of JANET. Two trials will be reviewed in detail. The first is an ADSL trial that connects off campus learning centres directly to the JANET network. The second trial is a service that provides a broadband connection to the Internet via two-way satellite, to off campus learning centres and individual learners in remote and rural areas that are unlikely to gain access to fixed broadband access services such as DSL and Cable Modem in the foreseeable future.

Background

The speaker will begin by outlining the SuperJANET development programme and background to the work in the network development area. The speaker will then highlight the last mile technologies that are available today and explain the reasons behind the decision to choose ADSL and Two-way satellite technologies as opposed to other last mile technologies.

ADSL Trial

The ADSL trial will be examined in detail. The presentation will review the trial aims and objectives, the technical infrastructure implemented, the service support elements required and choice of trial sites. Experiences from the ADSL implementation exercise and feedback from the trial itself will then follow. There will a practical case study on the use of the ADSL connection with wireless LAN. The ADSL trial section will end with details of the proposed full service and plans to develop a full ADSL service.

JISC Two-way satellite trial

The two-way satellite trial will be examined in detail. The presentation will review the trial aims and objectives and reasons for choosing two-way satellite connectivity to the Internet. An overview of the technical infrastructure will follow with the reason for trialling two technologies, namely DVB-RCS and Gilat for off campus learning centres and individuals/small groups respectively. A typical two-way satellite installation will be presented step-by-step and results of the first 4-5 months of the trial service will be presented.

Wireless Activities

The next area of focus will be wireless technology to assist in the "last mile". The speaker will begin by introducing the Wireless Advisory Group. This is an advisory group that is being established to examine fixed and wireless technologies and recommend specific technologies for trial. In parallel to the advisory group, UKERNA in partnership with the University of Southampton have also conducted a survey of wireless network activities in the UK academic community, the key results of this survey will be presented. It is hoped that the findings of the survey will establish best practices in wireless technologies as well as identify suitable members for the advisory group.

UKERNA are also actively involved in the Terena Mobility Task Force and will ensure that the results from the task force will feed back into the Wireless Advisory Group.

Cable Modem

The speaker will briefly mention Cable Modem technology of which there are two main commercial players, Telewest and NTL. Due to commercial conditions in the UK and concerns with Ethernet sharing at the last mile, for the investigation into this technology is currently on hold.

IP over Power

The final area of technology that is currently being tracked is IP over Power lines. The work to date in this area will be discussed together with UKERNA's thoughts for trialling this technology in 2003.

Benefits of JANET services

The speaker will then move away from the technology and briefly discuss what the benefits are of offering these network access services to the academic community compared to commercial service providers.

Users

The presentation will then focus on the other key area, who the users are, and prioritisation of users for network access.

The speaker will begin by confirming that most focus has been to connect off campus learning centres, followed by student residencies. This is because these are manageable connections that fit into previous service processes and connection orders for other services. In the case of individual users for the satellite trial, there was a contractual obligation between the individual user's academic organisation and UKERNA.

The speaker will then say that if the user group expands to consider pre-16 or individual learners (students and staff), there are more complex issues to overcome such as content filtering obligations and service support processes to cater for many hundreds and thousands of users, many of whom may not have first line technical support from their academic organisation. UKERNA are addressing individual needs as a separate requirement for network access. It is likely that a managed service will be needed to cater for individual users.

European NRENs relevance and Opportunities

The speaker will highlight that there is a significant knowledge base within the collection of European NRENs. The proposal will be made that where there are similar technology trials within NRENs, that these should be identified and publicised possibly by TERENA so that specific technology projects such as ADSL can exchange relevant ideas and knowledge from other ADSL triallists in other NRENs. An example will be given of the UKERNA Wireless Questionnaire that as a result of feedback from other NRENs (who had already done a similar exercise) was significantly improved.

The Year Ahead

The speaker will make the following points

- UKERNA are actively pushing forward with its network access activities.

- UKERNA want a full ADSL service that at a minimum will enable off campus learning centres and student residences to be connected to JANET.

- UKERNA are keen to learn from the JISC two-way satellite trial, as this could be the only broadband access method for up to 40% of the UK population.

- UKERNA will prioritise its wireless technology trials as a result of the recommendations of the Wireless Advisory Group.

- UKERNA will continue to represent and play an active role in network challenges with European NRENs, as there is a significant knowledge base and also the opportunity to participate in large cross border network projects.

Acknowledgements:

Nick Torkington at Oldham College for use of his case study material on the use of ADSL with Wireless LAN technology.

DC Sat.Net for the supply and use of SatLynx satellite product and service information.

SSE Telecom for the supply and use of IP over Power information.

Tim Chown (University of Southampton) for his contribution to the Wireless Technology survey results.

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