

**Periodic Progress Report 11**  
**Period: 4.2005 - 6.2005**

**IST-2001-37580**

**Silk Project Operations Networking and GEANT Extension**

**SPONGE**

**Project Manager:**

Professor Peter T Kirstein

Department of Computer Science  
University College London  
Gower Street  
LONDON  
WC1E 6BT  
U.K.

Phone: +44 (0) 20 7679 7286  
Fax: +44 (0) 20 7387 1397  
Email: p.kirstein@cs.ucl.ac.uk

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## 1 OVERVIEW

During the quarter we held SB9 in Kazakhstan. Much of the Silk Board meeting was concerned with the choice of Carrier for the next phase of the project – Silk-2. The minutes of the meeting are included in an annex. The unanimous decision of the Board was to recommend the use of the EXPRESS-AMI satellite, provided by Alcatel-Spatiale, operated by the Russian company ASEKT for the whole of Silk-2 communications. From the technical and economic criteria, this was the best choice; however, there are political concerns from NATO which are at least delaying such a decision. The subject is still *sub-judice*; in the mean time, we have extended our present contract with Eurasiasat to the end of October. This is both to give us time to make the technical tests and preparations for the transition, and to try to resolve the political problem. We will in any case do some of the testing to establish the technical feasibility of the EXPRESS solution. We have decided to delay our completion of D11, our choice of carrier for Silk-2, until the next quarter – hoping that the uncertainty will have been resolved.

In QR-9, we reported that we had submitted a follow-on proposal to SPONGE called OCCASION. This included all the Silk NRENs except Afghanistan, which was excluded because they are not eligible for IST funding. Just before the Silk Board meeting, it became clear that the proposal had a sufficiently good evaluation that it would probably be retained. There was a meeting after the Silk Board to discuss the sort of activity which would be needed between SB9 and SB10 to ensure that the OCCASION negotiations could be completed properly.

Several parties have expressed interest in funding expansions of Silk for different purposes; however all discussions on extensions of Silk with other organisations have had to be put on hold until the choice of carrier for Silk-2 has been resolved. The organisations would like a clear idea of the cost of communications; this is critically dependent on the choice of carrier.

The Deliverable D10, on papers from the Silk Committees, was finally delivered.

Three countries are now purchasing additional bandwidth at the subsidised rate of 50% of cost. We have therefore increased the bandwidth until the end of Silk-1 to 20 MHz; 15 MHz is being used to provide bandwidth at no charge on an equal basis to the Silk NRENs; 5 MHz is being made available at the subsidised rate – any NREN being entitled to an equal share of the subsidised bandwidth.

## 2 TECHNICAL ACHIEVEMENT

### 2.1 WP 1 - Administration and Management

The project has three tasks in the administration of the Silk Project and of the Sponge Project itself, namely:

- A1.1 SPONGE Project Management
- A1.2 Silk Project Management
- A1.3 Relationships with Funders.

#### 2.1.1 Sponge Project Management

During the quarter, the extension of the SPONGE project to October 2005 was received. We have operated the whole quarter as if the new amendment was in place. The revised Deliverables are listed in Section 3.1. In fact one Deliverable D11 on the choice of Carrier for Silk-2 will be delayed for reasons given in Section 2.1.2.

There was a SPONGE project meeting at SB9 in Almaty, Kazakhstan May 31, 2005. In QR-9, we reported that we had submitted a follow-on proposal to SPONGE called OCCASION. This included all the Silk NRENs except Afghanistan, which was excluded because they are not eligible for IST funding. Just before the Silk Board meeting, it became clear that the proposal had a sufficiently good evaluation that it would probably be retained. Clearly negotiations for that project had not been formally started by the time of SB9, but it was considered important to use the fact that we all together there. At the meeting we discussed the sort of activity which would be needed between SB9 and SB10 to ensure that the OCCASION negotiations could be completed properly. This included Kirstein outlining both the documentation that would be needed from the NRENs, and the sort of documents that would need to be prepared. Some NRENs were interested in having most of their funds coming via RUG, based on direct invoices; this will be discussed with the EC.

#### 2.1.2 Silk Project Management – Silk-1

The Silk Board meeting SB9 was eventually held in Almaty, Kazakhstan, May 30 – June 4. It had been scheduled to be held a little earlier in Tashkent, Uzbekistan; with the tragic killings in that country, NATO

took the decision, at the highest level, that no such meetings could be held there at this time. KAZRENA agreed to host the meeting at very short notice. Kirstein had a non-refundable ticket, and Janz had to pay a smaller penalty; as a result the SPONGE cost of attending the Silk Board meeting was considerably higher than budgeted. The meeting was very successful. It was supported by the Open Society Initiative, who made it a condition that there be simultaneous English-Russian translation. This greatly improved the participation and efficiency of the meeting. We had really wanted to have these such translation services at earlier meetings, but had been unable to afford it, since NATO funds was not permitted to be used to cover the cost of the Silk Board meetings. As a result of moving the venue of the meeting from Tashkent to Almaty at the last moment there was a 50% over-expenditure also of the OSI budget.

Much of the Silk Board meeting was concerned with the choice of Carrier for the next phase of the project – Silk-2. The minutes of the meeting are included in an annex. There was discussion if fibre connectivity could be funded also under Silk-2. Only Azerbaijan wanted this option at this time, because they had the chance of fibre connectivity at only a little more than satellite costs. It was agreed not to fund this in Silk-2 for two reasons: the NATO funding case had been based on the more cost-effective satellite option, and it was considered very important politically to keep the project as a more unified whole. There was discussion of whether to have the Caucasus and Central Asia adopt different satellites, and whether to use C-band or KU-band frequencies. C-band had lower traffic charges, but was rejected because neither ARENA nor UzScinet were expected to get permission for this. With KU-band, differences between the regions were marginal, and it was the unanimous decision of the Board to recommend the use of a single system, the EXPRESS-AMI satellite, provided by Alcatel-Spatiale, operated by the Russian company ASEKT for the whole of Silk-2 communications. From the technical and economic criteria, this was the best choice; however, there are political concerns from NATO which are at least delaying such a decision. The subject is still *sub-judice*; in the meantime, as was forecast in the last QR, we have been forced to extend our present contract with Eurasiasat to the end of October. This is both to give us time to make the technical tests and preparations for the transition, and to try to resolve the political problem.

When the extension Description of Work was prepared, we took due note of the fact that the new contract for Silk-2 should have been completed before the end of May. With the final choice of carrier still unclear, we have decided to delay the Deliverable describing the communications choices until the next quarter. Moreover, because the Deliverable will give commercially sensitive pricing information, we will have to make the Deliverable confidential to the project and the Commission.

The final Silk Board meeting being held under SPONGE auspices will be the following one (SB10), which will be held in Bishkek, Kyrgyz Republic immediately after the final SPONGE Review.

Normal operations during Silk-1 are somewhat hampered until we decide on the operator for Silk-2. We would like to replace the remaining Block Up-Converters (BUCs), which have been a problem since the beginning; however, this would be very expensive unless we decide to keep the current Carrier. This is now having repercussions in Kazakhstan, which would like to reach a traffic level in which its old BUC cannot operate – and is raising feelings amongst certain countries of being considered less important than others. Finally, the difficulty in upgrading the cache software on the Content Engines provided by Cisco has not yet been resolved; the software incorporates encryption, which cannot be exported to some of the Silk countries. We have requested permission from the US Department of Commerce to obtain the requisite permission, but it has not yet been granted.

### 2.1.3 Silk-2 Preparation

In discussion with potential satellite providers, it is essential to know what range of satellite capacity will be required. In the era of moving towards self-sustainability, this requires commitment of funds from the NRENs. It is very hard to get such firm commitments in advance. In SB9 we confirmed that we will allocate around 65% of the funds to the provision of bandwidth 100% paid by NATO – but with the volume of such bandwidth dropping in 2006 and further in 2007. NATO funds will be allocated to providing an equal base capacity to each country; all countries being entitled to purchase equal additional capacity at a 50% subsidy. Above this level, additional capacity can be purchased at full rates. We will also top-slice the investment needed to ensure that the equipment in each country is able to operate at full bandwidth. This will allow the countries freedom in their request for transmit versus receive capacity; we expect that this will result in some countries choosing hybrid communications.

We cannot, at present, state what capacity will be provided. The indications are that with the Russian solution for Silk-2, we would be able to operate at least up to 25 MHz; with the Turkish one, there is a chance of extra funding from NATO. These uncertainties should be resolved during the next quarter.

In case we are able to use the EXPRESS-AMI satellite, we have started discussing what measures must be taken to establish the technical feasibility of upgrading the earth stations; the costs of upgrading the NREN earth stations would be minimal, and the necessary equipment for equipping one earth station will be ordered shortly. The cost of upgrading the hub would be high, but most of the cost would be shouldered by ASEKT. We are discussing in detail the tests that would be done over the next few months to minimise the disruption caused by the transition. We believe we can do most of the testing with the remote earth stations to establish the feasibility by using a Moscow hub; serious upgrading would have to wait for a decision to proceed.

#### **2.1.4 Co-funding from the NRENs**

Georgia (GRENA), the Kyrgyz Republic (AKNET-KRENA) and Uzbekistan (UzScinet) are already buying extra bandwidth – some of it subsidised, from Silk; Armenia (ARENA) and Kazakhstan (KAZRENA) are expected to follow suit. As a result we have been able to operate until the end of the current contract (July 2005) at 20 MHz – with 5 MHz co-funded at 50%. How long after such a regime can be maintained depends on when the Silk-2 decision is resolved.

#### **2.1.5 Relationship with Funders**

The discussions with the main co-funding organisations, the Soros Foundation (OSI), the University of Central Asia (UCA), the World Bank, EuroAid and ISOC have again been slow this quarter. These are listed in the order of probable finalisation. We expect renewed activity with OSI during Silk-2; they were very helpful in working with the countries in the preparation of the OCCASION project, and in supporting SB9. The discussions with the World Bank have been sporadic, but they attended SB9 and still indicate that they would like to be involved with Silk-2 in Central Asia. The contacts with UCA have been sporadic also; we are not currently able to quote costs during Silk-2, since the choice of Carrier impacts strongly the cost of extra earth stations. The Chief Executive of ISOC was not able to attend SB9, but will be invited to SB10. There has been little further contact with EuroAid, since they are currently evaluating tenders for the contractor for their Distance Education project in the Caucasus.

## **2.2 WP 2 - Infrastructure Services**

Here the project has three tasks:

- A2.1 Liaison with other relevant projects
- A2.2 Dissemination of information on the Silk project itself
- A2.3 Workshops

### **2.2.1 Liaison with other Projects**

We have continued our liaison with 6NET and started some with 6DISS. The former is providing the software for VoIP and videoconferencing over IPv6, and has very useful reports on transition strategies. The second has now started, but concrete results will be reported in the next QR. There have not been further discussions with SEEREN and its IPv6 activities, because of their heavy dependence on MPLS, which the Silk project is not using.

### **2.2.2 Workshops**

Since the first tranche of ISOC funding was exhausted last quarter, and the discussions for a new activity with ISOC funding are only just starting, there was no activity this quarter. However, there will be training workshops supported by NATO both on CERTs in Tblisi in August and on Distant Education in Almaty at the end of October.

## **2.3 WP 3 – Technical Activities**

Here the project has three tasks:

- A3.1 Configuration
- A3.2 Infrastructure Measurement
- A3.3 Caching

### **2.3.1 Configuration**

There has been little need to do anything except routine re-configuration as we change bandwidth allocations.

### **2.3.2 Statistics and their impact**

As usual, the complete traffic statistics are available on the Web. We give below a summary of the traffic

for the whole quarter. Since the June, the statistics are also available from the main page of the Silk web site. Until then the access was password protected because operational instability would be visible to everybody, with the risk of getting bad PR. Experience has learned that the Silk system is very stable with little reason for bad PR.

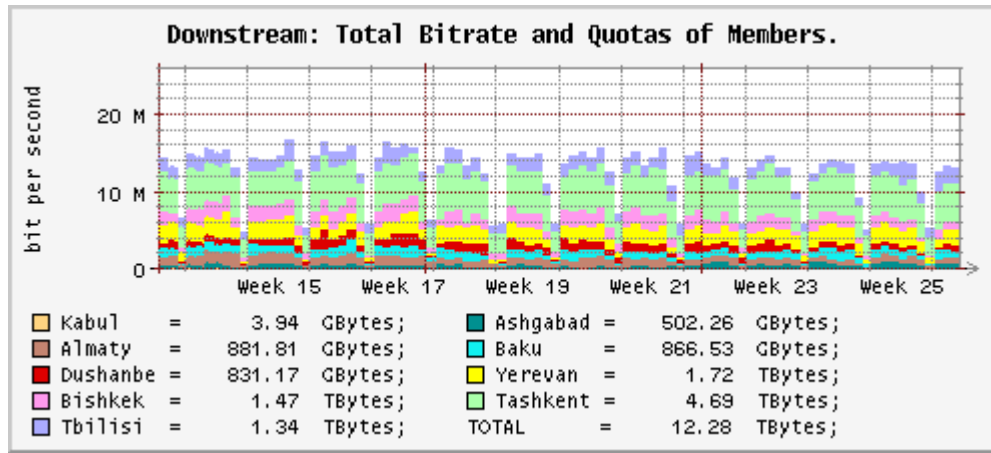


Figure 1 The Traffic Received for Q2 2005

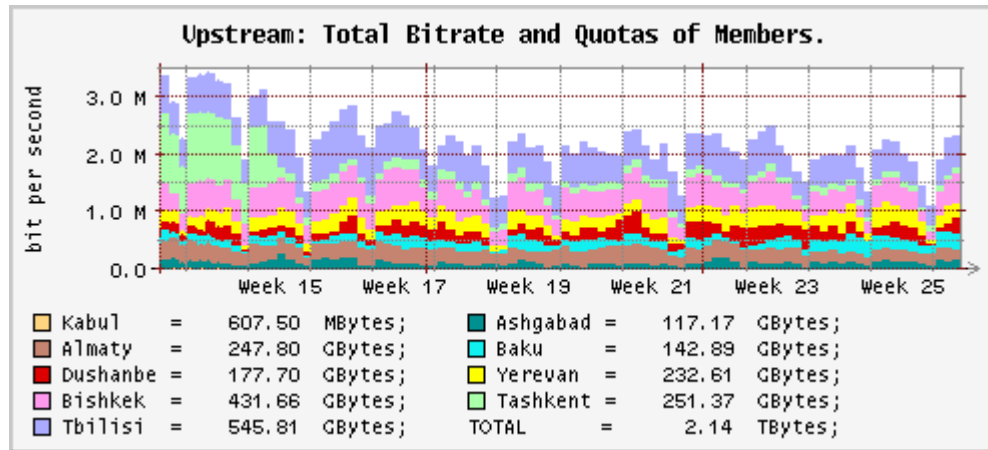
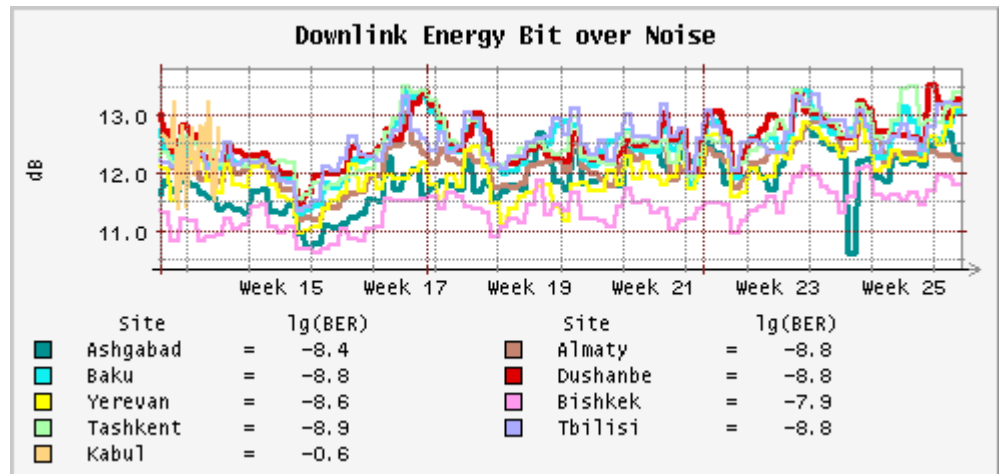


Figure 2 The Traffic Transmitted for Q2 2005

The figures show that the links are now saturated. The received/transmitted data has grown from 12.1/2.7 TB in Q1 2005 to 12.3/2.1 TB in Q2 2005. The channel is now pretty fully used; the statistical sharing ensures that any down-link bandwidth not used by one country will be used by another. As a result of the experiments carried out during the previous quarter, we have re-allocated the Return Channel bandwidth so that each of the countries with smaller allocations could use 10% more than their current usage; their Committed Information Rate (CIR) on the DVB channel is already equal. Thus the figures above indicate the current real channel needs of the smaller users. The larger users could, of course, use much more capacity. In fact, there are now three countries – Georgia, Uzbekistan and Kyrgystan – who buy more than their free allocation. We had expected to provide only 18 MHz. With the combination of extra bandwidth from the EC and the purchases from the NRENs, we have gone up to 20 MHz in total, and allocate 5 MHz with a 50% subsidy to those countries which would like to purchase it. We will remain at 20 MHz until the end of the current contract – July 31, 2005.

It is possible to obtain separate statistics for each country, and to have this over any period. Such statistics show one sad fact which is not too visible in these graphs, but visible from the traffic volumes – the Kabul site stopped working in the middle of April. This was due to a failure in some electronics, and it was not possible to analyse the cause remotely. Very considerable time was wasted in trying to locate equipment in Kabul which could be used to measure the channel. This turned out to be unavailable, and a spectrum analyser had to be ordered. The combination of delay in its arrival, and difficulty in obtaining visas and organising visits to Kabul, means that the site will not be brought on-line again until some time the next quarter. To avoid this recurring, the spectrum analyser will be left in Kabul; indeed, we are considering buying similar equipment now for each site.

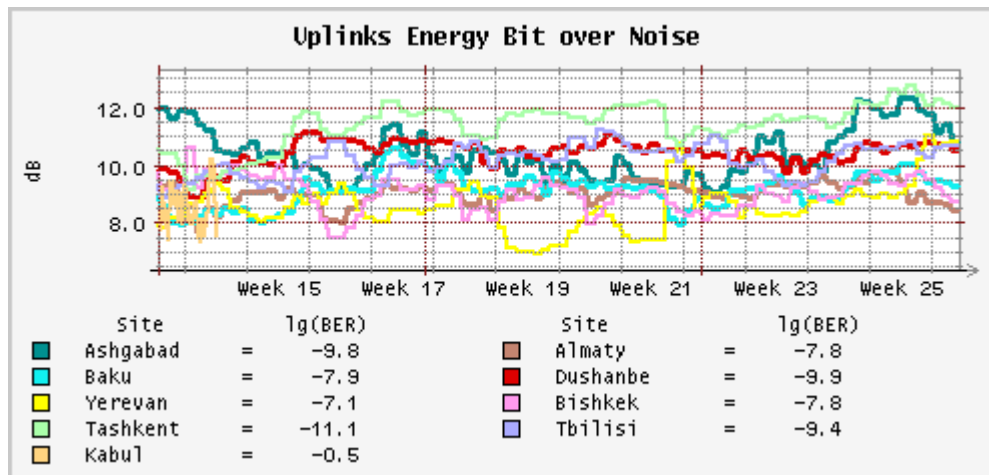
A very useful measure of the health of the system is the signal/noise ratio. The figures for the quarter are given in Fig. 3.



**Figure 3 The Downlink Signal to Noise Ratio for Q2 2005**

This figure shows that the signal to noise ratio is reasonably good most of the time, and normally varies little between the different countries. This is not surprising, since they are using the same DVB channel, and we do not expect any errors due to the equipment itself.

The uplink signals/noise ratio is shown in Fig. 4 for the quarter.



**Figure 4 The Uplink Signal to Noise Ratio for Q2 2005**

This figure indicates that there were few serious problems during the quarter. During April, the Yerevan site had some problems, which were fixed. The Kabul site clearly failed during week 13.

### 2.3.3 Caching

In the Silk Board (SB8) meeting, it became clear that the situation with the Cache engines had not improved. We instituted a special effort with Cisco to understand the problem with getting operational the newer version of the cache software. This revealed that the problem was due to the Cisco software not being authorised to be enabled in some of the Silk counties. We have applied to the US authorities for export permission, but by the end of the quarter, this had not materialised. For this reason there was no caching progress during the quarter. We note that there should be a further Deliverable on D14 on the advantages of caching towards the end of the project. If the permission to upgrade the software is not available soon, it will be impossible to complete this Deliverable.

### 2.3.4 IPv6 Activity

No significant new activity was reported here during the quarter.

## 2.4 WP 4 – Personal Communications

The most significant activity here was due to decision by NATO to encourage video conferencing between organisations in the Caucasus and NATO. In order to accommodate this, they have given the Silk project a special allocation. The resulting equipment, though ordered in the previous quarter, had not been delivered

by the end of this quarter. It will be installed during the next quarter. We do not think it advisable to introduce too many different new services at this stage of Silk-1. For this reason, we recommend working with H.323 rather than introducing the Mbone tools too during the next quarter. For this reason, we propose to rename D13 to "Experience with the H.323 tools". The work with the Mbone tools will be postponed until the OCCASION project over Silk-2.

### 3 STATUS OF DELIVERABLES AND MILESTONES

#### 3.1.1 The Technical Deliverables

Del. No	Del. Name	WP No	Lead Parti-Pant	Est. Pm	Plan	Target	Actual
D1	Terms of Reference of the Different Committees	1	UCL	1	03-03	03-03	03-04
D2	Covering paper on the services available and the status of the Silk Sites	2	RUG	6	09-03	09-03	10-03
D3	Detailed Report on the performance of the Silk system over the previous quarter	3	RUG	3	08-03	08-03	10-03
D4	Report on resources required for, parameters needed for, and experience with VoIP in the Silk Environment	4	UCL	4	09-03	09-03	10-03
D5	Status of NRENs and their regulatory environment in the Silk countries	1	UCL	1	12-03	02-04	04-04
D6	Minutes and Working Papers of the Committees after first year of operation	1	UCL	1	03-04	03-04	04-04
D7	Table of Contents of two co-sponsored workshops	2	RUG	2	03-04	03-04	04-04
D8	Preliminary Report on the advantages gained on caching	3	RUG	3	03-04	03-04	04-04
D9	Report on the performance of the Silk system over the previous quarter	3	RUG	4	08-04	10-04	10-04
D10	Minutes and Working Papers of the Committees after second year of operation	1	UCL	1	26	31	06-05
D11	Choice of Communications Carrier for the SILK network for 2005-2007	1	UCL	3	33	33	09-05?
D12	Experience with IPv6 in the SILK project	3	UCL	2	34	34	09-05?
D13	Report on resources required for parameters needed for, and experience with the Mbone tools in the SILK Environment	4	UCL	2	35	35	09-05?
D14	Final Report on the advantages of caching	3	RUG	1	35	35	Cancel??
	Total			34			

We re-scheduled the incomplete Deliverables to take advantage of the proposed end of the project being postponed to October 2005. We also added two new ones: D11 and D12 above. We are late on D11, because NATO has not decided whether to approve our recommendation; we will issue D11 in any case during the next quarter.

### 4 ISSUES

The delay in NATO's decision making on the choice of Carrier for Silk-2 is becoming serious. This is nothing which the SPONGE staff can force through. It will delay D11 until the next quarter. The decision by NATO to provide H.323 equipment to the Caucasus during the next quarter, makes it desirable to change

D13 to concentrate on H.323 rather than the Mbone tools; this is sad, since UCL has a new project to maintain the Mbone tools for the research community! The late permission to deploy upgrades to the caching software may make D14 impractical. We are worried that the Project Officer may not like this wholesale change of Deliverables at the end of the project!

## 5 PARTNER DETAILS

None

## 6 MEETINGS

### 6.1 Project Meetings

Here we list only physical meetings. The bulk of the meetings are telephone meetings.

Date	Location	Participants	Outcome
May 31 - June 1	Almaty, Kazakhstan	Kirstein, Janz, Babayan, Kvadadge	Silk Board
F June 2	Almaty, Kazakhstan	Kirstein, Janz, Babayan, Kvadadge	Meetings on OCCASION, SPONGE and future communications

### 6.2 Conferences/workshops organised

Conferences or Workshops have been organised in this Quarter.

Date	Location	Participants	Outcome

### 6.3 Conferences attended and Presentations Given

Date	Location	Topic	Participants	Outcome

### 6.4 Submission of papers

Topic	Abstract	Journal/Conference	Status

## 7 EFFORT FOR THE REPORTING PERIOD

Resource allocation (Partner vs. WP) for the reporting period (man-months)

### SUMMARY Q11

	WP 1	WP 2	WP 3	WP 4	Total	Uncharged
P01	0.6	0.2	0.0	0.4	<b>1.2</b>	<b>0.4</b>
P02	0.5	0.5	0.5	0.5	<b>2.0</b>	<b>1.0</b>
P03	0.5	0.0	0.0	0.0	<b>0.5</b>	<b>0.5</b>
P04	0.3	0.2	0.2	0.1	<b>0.8</b>	<b>0.8</b>
<b>Total</b>	<b>1.9</b>	<b>0.9</b>	<b>0.7</b>	<b>1.0</b>	<b>4.5</b>	<b>2.7</b>

### Previous Q1 – Q10

	WP 1	WP 2	WP 3	WP 4	Total	Uncharged
P01	4.8	1.7	1.8	4.2	<b>12.5</b>	<b>3.5</b>
P02	4.6	6.2	5.1	3.0	<b>18.9</b>	<b>7.0</b>
P03	3.0	0.0	0.0	0.0	<b>3.0</b>	<b>3.0</b>
P04	2.4	1.6	1.6	0.8	<b>6.4</b>	<b>6.4</b>
<b>Total</b>	<b>14.8</b>	<b>9.5</b>	<b>8.5</b>	<b>8.0</b>	<b>40.8</b>	<b>20.3</b>

### Cumulative Q1 – Q11

	WP 1	WP 2	WP 3	WP 4	Total	Uncharged
P01	5.4	1.9	1.8	4.6	<b>13.7</b>	<b>3.9</b>
P02	5.1	6.7	5.6	3.5	<b>20.9</b>	<b>8.0</b>
P03	3.5	0.0	0.0	0.0	<b>3.5</b>	<b>3.5</b>
P04	2.7	1.8	1.8	0.9	<b>7.2</b>	<b>7.2</b>
<b>Total</b>	<b>14.8</b>	<b>9.5</b>	<b>8.5</b>	<b>8.0</b>	<b>40.8</b>	<b>20.3</b>

## 8 EXPENDITURE

The financial information contained in this report is estimated and does not represent a legally binding statement of costs.

The figures are quoted in Euros, using the exchange rates of 0,7 £/Euro for Partner 1.

### 8.1 Durable Equipment Expenditures

Date*	Description	Depr	% Allocation to Project	Used for	Amount
Total for quarter					
Previous Total					
Total Cumulative from start of the project as originally planned					

## 8.2 Travel and Subsistence Expenditures

Date*	Description	Used for	Part	Euro
May 30 – June 4	Travel to Almaty, Khazakhstan	Silk Board and other meetings	1, 2	€200
Total for quarter				€200
Previous Total				€9, 200
Total Cumulative from start of the project				€1,400

## 8.3 Consumables Expenditures

Date*	Description	Depr	% Allocation to Project	Used for	Amount
Previous Total					300
Total Cumulative from start of the project as originally planned					300

\* Invoice Date

## 9 OTHER INFORMATION

None



## **9.2 Acceptance of, or Changes to, the Agenda [Kirstein, SB9-2]**

The agenda was accepted without changes.

## **9.3 Introduction of Participants**

For the first time in many meetings, all Silk countries were represented at the Silk Board meeting. In the case of Uzbekistan the formal representative (Alisher Khadjaev) was not present; his temporary replacement was Vadim Navotny.

## **9.4 Minutes of Previous Meeting of the Silk Board in Yerevan [Kirstein, SB9-4]**

The minutes were approved without any changes or comments.

## **9.5 Actions Arising from SB8 [Kirstein, SB9-5]**

**Action 4.18.2:** NRENs will define Cisco E-learning sections that may be put in the CE

The NRENs have still not submitted E-learning sections. This is partly due to the fact that the Content Engines (CEs) are not operational.

**Action 5.24.5:** Aliyev will present a summary of the Distance Education workshop.

The summary has not been submitted yet, but will be taken care of after the SB9 meeting.

**Action point 6.23:** Berezhnev will send out a questionnaire regarding national infrastructures that might be used by the NRENs.

The questionnaire has not been sent out. However Berezhnev has consulted most of the NRENs directly and used this information for discussions in the Silk ExCo. The action point may be marked as done.

**Action 6.28:** Frese send VoIP statistics on the use of the DESY system to Kirstein

Not done.

**Action 7.5:** Vladimir Lavros write report on the current situation with the Content Caches by the end of October

Done.

**Action 8.6.1:** The NREN representatives will (re-)nominate their Silk ExCo representatives before February 21.

Done.

**Action 8.6.2:** The Silk ExCo will investigate the possibility of having spare BUCs in the region.

Done. The costs of extra BUCs that are within the regions are within regional limits. However the added value is relatively small as custom procedures between the various Silk countries might still prove to stand in the way of swift replacement of a BUC if it is broken. Further no decision on this point can be taken before the choice of provide for the next period has been made.

**Action 8.6.3:** Berezhnev will prepare a detailed proposal for an upgrade of the central router.

Not done

**Action 8.6.4:** All NRENs will submit detailed reports well before the next Silk Board meeting.

Seven of the nine countries have provided reports. Janz will combine the documents into one document.

**Action 8.6.5:** Frese will distribute the electronic version of the spreadsheet to the Silk Board members.

Done. Kirstein reminds the Silk representatives that the information in the spreadsheet is confidential and should not be distributed too widely.

**Action 8.7.1:** Kvatadze and Berezhnev will prepare a report on fibre optic alternatives in the Silk region.

Done, albeit that the report was orally at one of the Silk ExCo meetings.

**Action 8.18.1:** Janz will approach OSI for funding of next Silk Board meeting

Done. OSI has provided a grant of \$ 10,000 for the travel/lodging expenses of the Silk Board members and the costs of meeting facilities. OSI has made the grant conditional to the availability of simultaneous translation during the Silk Boar meeting. This has been arranged. Janz further remarked that the OSI budget was sufficient for the Tashkent meeting, but the extra costs caused by the change of venue and the fact that Kazakhstan is more expensive will lead to approximately 50% higher costs that first calculated. This problem will be addressed in the Silk ExCo.

**Action 8.20.1:** Janz/Kirstein will report on the use of soft phones.

Not done but will become part of 9.21.

## 9.6 Status Report on Current Installations

- Reports from the NRENs

The reports provided by the NRENs required no further discussion.

- Outstanding Problems and planned solutions (Frese)
- Presentation on current bandwidth and load statistics [[Berezhnev, SB8-6.2](#)]

The bandwidth distribution and total amount will stay the same until the end of the current contract with EurasiaSat. Berezhnev presented an overview of the bandwidth distribution and throughput over the last months.

- Feedback on current experiences (SB NREN members)

Nehan reported that the Afghan dish has been out of order since April. The situation is very disappointing, as it appeared that no effort was being made to repair the dish. Berezhnev said that remote resolution of the problem had been tried, but without success. Time has been lost in trying to find a company or organisation with a spectrum analyser in Kabul. The next step is to send a technician from MSU or DESY to Kabul. This will be taken up immediately after the SB9 meeting

**Action 9.6.1:** Silk NOC staff will go to Kabul for repair of the dish equipment.

Aliev reported that several activities related to ICT and research and education are taking place in Azerbaijan. There is a national plan for distance education and the government is providing fibre optic connectivity throughout the country, as well as the possibility for international connectivity. There has been a fibre-based connection between AZRENA and the West, via Moscow, for several months.

Japarov reported that the KARENA BUC is not functioning well. Although this does not interfere with operations at this moment he has little confidence in it. The BUC is clearly not in order and should be replaced. Frese responded that he will have to wait until the BUCs that are in the repair track arrive at DESY; after that, the KAZRENA BUC can be replaced.

Gajewski mentioned the creation of the Central European Virtual University, where 17 technical universities have joined forces in distance education. Courses that are developed at one university are shared with the other partners in the project.

- Current status of caching (Janz)

None of the Content Engines (CEs) are operational at the moment. The main reason for this is that there are various technical problems that can only be solved by upgrading the CEs to a new software level. Unfortunately the US government requires specific approval to allow export of the software due to its incorporation of encryption software. DESY and Cisco are applying for this approval; this is currently DESY's responsibility. Once we receive the new software, DESY will upgrade the CEs to the level that supports preloading of content. Without this feature the Caching work package cannot be completed.

Navotny asked if the CEs may be used for other purposes. Kirstein responded that it could be used additionally for storing educational material, but the CEs were donated for educational support and their fundamental purpose cannot be changed. Further there is the sensitive issue of keeping the equipment under the management of the Silk NOC in order to avoid misuse of the filtering possibilities of the CEs.

**Action 9.6.2:** Frese will implement procedure to solve the export ban.

**Action 9.6.3:** DESY staff will upgrade CEs.

## 9.7 Review of Silk-1 and its lessons for Silk-2

Kirstein asked the SB members if they have any suggestions for changes of procedures for the next Silk period. Kvatadze would like to see more involvement from Silk countries in the management. In Silk-1 most of the management was done within the Silk ExCo, in the next period more should be put before the Silk Board for approval. Also the NRENs should be more actively involved in the preparation of documents.

The frequency of the meetings was discussed. The conclusion was that during Silk-2 per year there should be two physical Silk Board meetings, two teleconferences and one to two technical meetings. The OCCASION grant (if approved) cannot provide funding for all of these meetings, so additional support will be necessary.

Gajewski would like to see more sharing of information with regard to projects that are underway in the Silk countries. Perhaps the SB members should send their proposals to the NREN list for peer review or at least discuss proposal ideas at the Silk Board meetings.

Stubbs said that the Silk connectivity is still been seen too much as a gift without concern for the future. The NRENs should start to generate income and this should be a main activity during Silk-2. Some NRENs replied that collecting fees is not possible under their current license; National providers will complain if the NRENs start to collect fees. Berezhnev suggested writing a report on this subject. After some discussion the following action points were decided on:

**Action 9.7.1:** Berezhnev will make a template with the subjects where information with regard to national providers is requested

**Action 9.7.2:** Each NREN will write report based on questions in template.

**Action 9.7.3:** The Silk ExCo (together with MSU) will analyse the results of the reports.

## **Session 2 14.00 – 18.00 Preparation for Silk-2**

### **9.8 Status Report on Current Negotiations on Silk -2**

During the previous months the Silk ExCo had received quotes from various providers and compared both the technical and financial dimensions. Frese reported that at the moment there are only two alternatives: EurasiaSat (Turkish) and Expres (Russian). The EurasiaSat offer is unfavourable in comparison to other offers. Expres has a cheaper offer, but it requires an upgrade of the equipment because of a shift to another frequency. An additional advantage of Expres is that the remote dishes are cheaper enabling easier extension of Silk access points to the regions.

Several NREN-members expressed their doubts with regard to the technical performance of the equipment of the Russian provider. They would like to see some extra safeguards if Expres is chosen. It was therefore decided if there is to be switch of provider, then there should first be a test with a spare dish in Hamburg and another test in either Georgia or Uzbekistan. Further, a reference from an existing customer was requested. While Berezhnev responded that this has already been asked, with negative result, the Board requested that such a reference be sought.

**Action 9.8:** Berezhnev obtain possible reference sites for EXPRES.

Kirstein stated that the Silk Board should first form an opinion of the choice of provider for the Silk-2 period, but after that NATO will have to approve of what has been decided. As there are also political dimensions to this issue, Kirstein sees no alternative to discussing this with the Assistant Secretary General (ASG). A meeting with him had been scheduled for the week after the Silk Board meeting.

### **9.9 Results of investigation of technical alternatives for 2005-2007 (Frese SB9-9)**

The comparison of the alternatives was presented in detail in the paper SB9-9, available in Russian as well as in English. After a lengthy discussion it was decided that the EXPRES solution was the best solution for Silk. The points in favour of this decision were:

- The traffic costs are at least 25% less than EurasiaSat
- New remote stations costs only \$10.000 (versus \$40.000 for EurasiaSat)
- The migration costs are less than the equipment costs needed to stay with EurasiaSat
- There will be no regulatory problems

Berezhnev claimed that there can be a one day change-over from the current system to the new one.

- If NATO approves of this choice then the following conditions should be met:
  - An English version of the contract is available
  - DESY agrees on all contractual issues
  - The proposed testing procedure is implemented
  - There is a clear transition plan, approved by the Silk ExCo
  - EXPRES produces at least one reference site.

**Action 9.9:** Frese provide testing scheme, transition plan and contractual review for approval of Silk ExCo.

### **9.10 Presentations from the potential Communications Providers for Silk-2**

At this point of the agenda, no providers were present. EurasiaSat arrived the following day, a summary of their input is presented here.

- Aysin repeated the EurasiaSat offer that is also presented in SB9-9. The price per MHz is the lowest that they can offer without disturbing their tariff structure in relation to other customers. In addition to the discount they are willing to provide a \$ 100,000 grant for the project. Further they state that EurasiaSat is the only satellite company that can offer KU band in the whole Silk region.

- If required EurasiaSat can double the capacity to 40 MHz on the transponder used by Silk. The pricing will then become cheaper (appr. 10%) if a contract can be signed in advance for this capacity.
- EurasiaSat is planning to install a KU VSAT hub in Turkey with the near future (an exact date could not be mentioned yet). This hub will support small (Gialt) earth stations that might be of interest for those countries seeking manners to connect sites outside of the capital.
- It should be noted that in view of the proposed \$100,000 grant from EurasiaSat provided all the sites used the same satellite, the actual bandwidth available using the EurasiaSat satellite would be greater than indicated in SB9.9. Since we would now plan to use better coding on the up-link with EXPRES-AMI, the cost of equipment for EXPRES would also increase. When all the factors are taken into account, the amount of bandwidth which would be gained using EXPRES rather than EurasiaSat would be 29% if there was no contribution from the NRENs, 34% if there contribution was half NATO's, and 36% if it equalled NATO's. The reason that EXPRES has an advantage with higher NREN contributions is that the \$100,000 donation is a fixed amount, which will do less to redress the higher EurasiaSat traffic charges if more bandwidth is provided. This ratio would get much worse, if additional earth-stations were installed.

### **9.11 The funding prospects**

NATO (Dewispelaere)

NATO has provided the following funds for the Silk-2 period: \$1,000,000 for general connectivity, \$150,000 for a video channel (mainly for the Caucasus region) and travel/lodging support for the consultants. If there is need for video equipment in the Central Asian region, then he thinks that the panel will decide favourably if the proposal is put before them this year. At the moment nothing can be said with regard to 2006 and the years thereafter. The Science Programme is currently being reviewed and the outcome of this will determine the future prospects.

OSI (Stubbs)

The OSI Network Information Programme will be reducing its spending over the next two years. Already there is no programme in Azerbaijan and Kyrgyzstan, within a few years this will also be the case in Armenia, Georgia and Uzbekistan. Especially the infrastructure projects will be affected by this. OSI will be concentrating its efforts in opening societies for information, assuming that other parties are adequately taking care of the technical side of the problem. OSI will continue to support related activities such as workshops and perhaps meetings. Also the running commitments will be left untouched.

University of the Mountains (Nadkarni)

There was no representative of the University of the Mountains present at the meeting.

World Bank (Bunchuk)

The World Bank is expanding its GDLN centres in the Caucasus and Central Asian region. They are now identifying institutes that are interested in becoming a GDLN; these centres will make use of video-conferencing. The World Bank will provide the content for the GDLN centres, and perhaps a little budget for connectivity. As the ISDN restriction has been lifted, Silk could provide the necessary connectivity; the GDLN centres will have to decide on this themselves.

### **9.12 Bandwidth Proposals from NATO funding (Kirstein, [SB9-12](#))**

The use of the budget for the remaining period and the matching principle has been explained in SB9-12 (English and Russian). In essence the proposal is the following:

- First all current earth stations will be upgraded to the same level
- The remaining budget will be distributed equally over the nine Silk countries, actually 1/3 Caucasus and 2/3 Central Asia.
- There will be a diminishing percentage of Silk budget available. The Silk countries will have to provide the necessary budget for matching.
- There was some discussion with regard to the possibility of using budget for fibre optic connectivity in response to a question from the Azeri representative. If this were approved, then the Science Committee would have to be consulted as it is a change of principle with regard to the scope of the project. DeWispelaere strongly advised against such a trajectory as it will put the whole Silk project under discussion. The Silk Board decided that budget should only be used for satellite connectivity in a joint project.

### **9.13 Current Status of EC support (Kirstein)**

Kirstein reports that the SPONGE project will come to an end at the end of October 2005. The follow-up project (OCCASION) has been submitted some months ago and he is still waiting for the formal decision.

Informal reactions have been positive, so he is hopeful that most of the required budget will be available.

Gajewski reported that the EU will fund a study investigating the possibilities of connecting the Caucasus region, Belarus, Ukraine and the Baltic states to GEANT by way of fibre optic. This study will provide road maps for the period after Silk-2 for a part of the Silk countries. (This project is in the same state of approval as OCCASION)

#### **9.14 NREN Reactions to Silk-2 Plans**

There were no reactions that have not been mentioned above.

## **TUESDAY MAY 31**

### **Session 3 9.00 – 13.00: Distance Education, Training and Technical**

The first part of the morning session of the second meeting day was spent on a discussion with the EurasiaSat representatives (see 9.10)

#### **9.15 Progress on Distance Education (Janz)**

Distance Education (DE) functionality is becoming ever more in demand within the Silk user community. For ordinary use (email, www, etc.) the Silk connectivity can provide the necessary bandwidth, although massive use will put the availability of sufficient bandwidth under stress. However DE often implies video conferencing and with current bandwidth it is nearly impossible to provide quality of service for such usage. The Silk Board therefore supports DE as an application on the infrastructure, but seeks extra financial support for special video conferencing channels. As the financing of a separate channel is too expensive for one user group, joint use from various projects is the only way to start such a dedicated channel. There are various parties that might be able to provide this extra bandwidth, some of which are present at the Silk Board meeting.

Bunchuk introduced the GDLN initiative of the World Bank. For the video conferencing connectivity the minimum (duplex) connectivity is 265 Kbps, but 512 Kbps is preferable. As said before the GDLN centre has to raise the budget for the extra connectivity themselves, although a small contribution from the World Bank is possible.

Aliiev reported on the DE initiatives in Azerbaijan. DE has high priority in his country, at university level as well as within government. The University of Indiana is the main partner in the DE activities of Azerbaijan. At present Sakai (see [www.sakai.org](http://www.sakai.org)) is being implemented as an electronic learning environment. Starting October 2005 video conferencing functionality will have to be provided.

Stubbs reported on the Central Asian Educational Network (CA ECN): CA ECN seeks to enhance the education reform processes through improved cooperation among countries in the region. It has built co-funding partnership with the Asian Development Bank for the project. CA ECN is a new, emerging complex network. Although such an organizational form is increasingly common internationally, there are only few examples in the Central Asia region. The CA ECN has drawn on the experiences of and established contacts with the South East Europe Education Cooperation Network (SEE ECN). The CA ECN builds upon existing achievements of the OSI network and Soros Foundation programs by strengthening collaborative links among individuals, groups, and education institutions in the region. Rather than establishing a new structure, the initiative supports the development of a regional network of affiliated national focal points mainly linked through an internet interface that will lead subsequently to collaborative projects. The main purpose of the CA ECN is to establish a network of education stakeholders in four Central Asian nations (Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan), interacting primarily through an Internet interface, with a view to sharing information on education reforms. Such information will include policy statements, project documents, legislative acts and regulations, statistics, analytical reports, research papers, successful education practices, textbooks, methodology guides, database of experts and consultants, etc. Video conferencing will be part of the technological functionality that is necessary.

In the discussion following the report on current DE activities, it became evident that DE is of importance in all of the Silk countries. Not all SB representatives saw video conferencing as a long term solution to the problems that were being addressed, but for the coming years it would certainly be necessary to provide support. Japarov pointed out that if DE will probably be the most important use of the Silk infrastructure in terms of the potential to generate financial support. Sadikov warned that in some countries the revenue generating part of the DE ambitions will run into legal problems.

As conclusion to the discussion on DE, it was decided that the subject has sufficient interest within the Silk

countries to start a working group on this subject.

**Action 9.15:** Janz will initiate a DE working group (charter, chairman, etc.)

### **9.16 Cache experience and use of Cache (Janz)**

As the Content Engines have been out of order for several months there has been no progress on this subject.

### **9.17 Interaction with and role of Cisco Academies**

Japarov reported on the Cisco Academy activities within Kazakhstan. There is a flourishing Academy in Almaty that trains engineers for the private as well as for the public market. With the increasing need of network security expertise there is a demand for these modules within courses that are being offered. Unfortunately these modules need extra equipment that have to be financed from their own means. It was suggested that NATO or CISCO can offer support for the Silk country academies here.

Kirstein would like to know what is actually needed and he will then approach CISCO.

**Action 9.17:** Kirstein will inform the Silk Board what Cisco might be willing to do with respect to support for additional security equipment for the Cisco Academy modules.

### **9.18 Progress on Workshops during Silk-2**

Kirstein has had some discussions with Lynn St. Amour, president of ISOC. Before any support may be expected from ISOC we need to deliver reports on the ISOC workshops that were organised in 2004. Without this it will be fruitless to apply for an additional grant. Further the ISOC procedures have changed and are more restrictive (according to Gajewski). We will have to deliver a clear description of the training that is necessary. Any workshops promoting ISOC will be received positively.

**Action 9.18:** Janz will publish workshop reports on the web and send formal report to ISOC.

### **9.19 Possible technical activities**

During Silk-2, the NRENs themselves must become more active in technical activities and training. This needs much more active participation by NRENs. The aim of this session was to get a feel for who might be interested in doing more in this area – either nationally or better between the partners. Several technical subjects were discussed.

### **9.20 Larger scale video conferencing**

Inter-regional video conferencing is becoming more in demand. At this moment the cost of this activity is blocking any growth of the application. Actually it would have to be free of extra costs if video conferencing is ever to go to be used outside of pilots. The video-conferencing need not to be of high quality, ordinary video-cam equipment will be good enough for a start. OSI is willing to co-fund an initiative that involves low quality video-conferencing. The Silk Board would certainly support the creation of a special video conferencing working group.

### **9.21 Following up more on caching**

Caching does have advantages with regard to saving of bandwidth, but in practice it is difficult to manage a cache system in a network with more than one external Internet connection. As there are other more important issues to be worked on this subject has less priority if manpower has to be assigned to a working group.

### **9.22 National CERT activities**

Most of the countries already have a CERT or plans are in progress to create such a system. It was decided that a CERT workshop would help to co-ordinate the various activities in this field. One of the Caucasus countries could host such a workshop.

### **9.23 Setting up an IPv6 infrastructure inside an NREN**

After the Tashkent workshop (October 2003) an IPv6 working group was established. In preparation for IST20004, there was activity to provide the IPv6 facilities. Since then, the activity has been very limited – in spite of the extra bandwidth provided by the EC specifically for IPv6 activity. This working group has not really been active, but could be awakened to follow-up on IPv6 pilots. Kirstein stated that it was very important to do some more before the end of SPONGE – partially to justify the use of the EC-supplied bandwidth.

At this moment there is no real enthusiasm for an operational IPv6 network within the network. The NREN representatives feel that they have no real need for IPv6, and are afraid that IPv6 will interfere with standard

operations.

#### **9.24 The 6DISS Project and IPv6 workshops**

The EC-funded 6DISS project started on April 1. It is going to be linked to the OCCASION project, so it will automatically become an activity of Silk2. The main work of 6DISS is in the provision of workshops; there will be at least a dozen in different parts of the world, with one or two in the Silk regions. The project is co-ordinated by Cisco, and the workshops will be training ones with substantial experimental activity. There will also be IPv6 laboratories in RENATER (France) and Cisco (Belgium) to which interested parties can get experimental access at all times. In addition there will be a database of high-quality training material available on all aspects of IPv6. Further information will be provided on this project as it develops. Kirstein asked for the names of contacts in the Silk countries, not only in the NRENs but also in Government, University and Industry, whom one could send details.

Action 9.19: All NRENs provide names of contacts to be sent details of IPv6 training material.

#### **9.25 Autonomous Domains and Local Registration**

Three countries have their own Autonomous Domain (Kg, Uz and Ge) and three countries are in the process of obtaining it (Kz, Am and Az). Technical support should concentrate here on the Silk countries that have not started to obtain an Autonomous Domain.

#### **9.26 Video conferencing in the Caucasus and Central Asia**

Stubbs repeated the OSI offer to support a low-quality video conferencing service within the Silk infrastructure. OSI will provide three sites in the Caucasus with equipment for a testbed. Stubbs will co-ordinate this activity, Gajewski will act as contact to the Silk ExCo and Silk Board.

#### **9.27 VoIP (Kirstein)**

Currently there are two VoIP systems in operation within the Silk community (Silk ExCo and Silk Board): the SIP system of UCL and the Call Manager system of DESY. All NRENs have two Cisco VoIP telephones that are connected to one of these systems. Unfortunately the two systems are not interconnected with sub-optimal use of the facilities as a result. Kirstein still has to distribute a report on the use of VoIP, not only within Silk but in other UCL projects as well. This report will be sent to the Silk Board with the intention of setting up a VoIP working group to deal with the recommendations mentioned in the report.

**Action 9.21: Kirstein distribute VoIP report and initiate VoIP working group.**

#### **Session 4 14.00 – 18.00: Planning for after July 2005**

#### **9.28 The SPONGE Review Report and moves to sustainability (Kirstein, SB9-23)**

The SPONGE review report was quite positive. The main criticism was the fact that the Silk countries are not very committed to the managerial part of the project. This is mainly caused by the fact that there was no funding available to compensate any time spent on SPONGE activities. Kirstein hopes to partly solve this problem when the OCCASION project is approved.

An activity arising from the review is that we are expected to produce an impact analysis of the SILK project the ICT environment in the countries participating in the project. Janz will co-ordinate this activity, but will need assistance from the NRENs.

**Action 9.23:** Janz will produce impact analysis of Silk project

#### **9.29 The organization of technical activities and meetings in Silk-2**

The only activity mentioned here was the CERT workshop discussed earlier. Babayan offered to co-ordinate this meeting.

**Action 9.24:** Babayan will co-ordinate CERT meeting

#### **9.30 Setting up Silk and National IP Registration Authorities**

This agenda point did not get discussed, partly because little can be said as long as the OCCASION project is not approved of and the amount of funding is known,

#### **9.31 Activities under OCCASION**

During the Silk Board meeting little was discussed with regard to OCCASION as the Wednesday was reserved a more detailed discussion on the content and status of the project.

#### **9.32 General Discussion**

Kirstein reports that not all of the Silk NRENs have updated the TERENA NREN compendium on the web, or even have ever provided information for the web site. He urges the NRENs to provide information for this web site as it is often used by various organisations and it gives a wrong signal if the information is outdated.

**Action 9.27:** All NRENs will update the information on the TERENA NREN compendium web site.

Janz presents an overview of the use of the Silk web site ([www.silkproject.org](http://www.silkproject.org)). The web site is being approached from all parts of the world, but very little from the Silk countries themselves. He requests the NREN representatives to put links to the Silk web site on their own web sites. Within a few weeks the site will be more attractive because of the live statistics that will be available on the home page.

### **9.33 Future Meetings Structure**

This was already discussed (see 9.7).

### **9.34 Future Meetings Calendar**

The next meeting (SB10) will be in Bishkek as already agreed on at the previous meeting. The provisional dates of the meeting were arranged as October 3 and 4 (Monday and Tuesday), to be followed by the first OCCASION meeting (Wednesday). We may try to re-arrange these dates because of the proximity to the NATO Panel Meeting.

The SB10 meeting will be in Tashkent, presumably around February 6 and 7, 2006.

### **9.35 Any Other Business**

There was no other business.

Kirstein thanked the SB participants for their contribution to a fruitful meeting. He especially thanked the translators for their excellent work and last, but not least, he thanked KAZRENA for the effort they have put into the successful arrangement of the meeting.

## **Attendees**

### ExCo

[S. Berezhnev](#)

H. Frese

J. Gajewski

R. Janz

P. Kirstein

C. De Wispelaere - NATO

### Guests

V. Navotny – UNDP, UZ

V. Mouravi – Cisco

S. Polishuk – Cisco

H. van Linde – NATO Networking Panel

D. Stubbs – OSI

M. Bunchuk – World Bank

N. Aysin – Eurasiasat

### NRENs

N. Nehan – Afghanistan

G. Babayan – Armenia

E. Aliev – Azerbaijan

R. Kvatadze – Georgia

B. Japarov – Kazakhstan

K. Karabukaev – Kyrgyz Republic

K. Sadykov – Tajikistan

C. Amansakhatov – Turkmenistan

A. Khadjaev – Uzbekistan

## SB9 ACTION POINTS

**Action 4.18.2:** NRENs define Cisco E-learning sections that may be put in the CE

**Action 5.24.5:** Aliyev present a summary of the Distance Education workshop.

**Action 6.28:** Frese send VoIP statistics on the use of the DESY system to Kirstein

**Action 8.6.3:** Berezhnev prepare a detailed proposal for an upgrade of the central router.

**Action 9.6.1:** Silk NOC staff go to Kabul for repair of the dish equipment.

**Action 9.6.2:** Frese implement procedure to solve export ban.

**Action 9.6.3:** DESY staff upgrade CEs.

**Action 9.7.1:** Berezhnev make a template with the subjects where information with regard to national providers is requested

**Action 9.7.2:** The NRENs write report based on questions in template.

**Action 9.7.3:** The Silk ExCo (together with MSU) analyse the results of the reports

**Action 9.8:** Berezhnev obtain possible reference sites for EXPRES.

**Action 9.9:** Hans Frese provide testing scheme, transition plan and contractual review for approval of Silk ExCo.

**Action 9.15:** Janz initiate a DE working group (charter, chairman, etc.)

**Action 9.17:** Kirstein inform what CISCO might be able to do with respect to support for additional security equipment.

**Action 9.18:** Janz publish workshop reports on the web and send formal report to ISOC.

**Action 9.19:** All NRENs provide names of contacts to be sent details of IPv6 training material.

**Action 9.21:** Kirstein distribute VoIP report and initiates VoIP working group.

**Action 9.23:** Janz produce impact analysis of Silk project

**Action 9.27:** All NRENs update the information on the TERENA NREN compendium web site