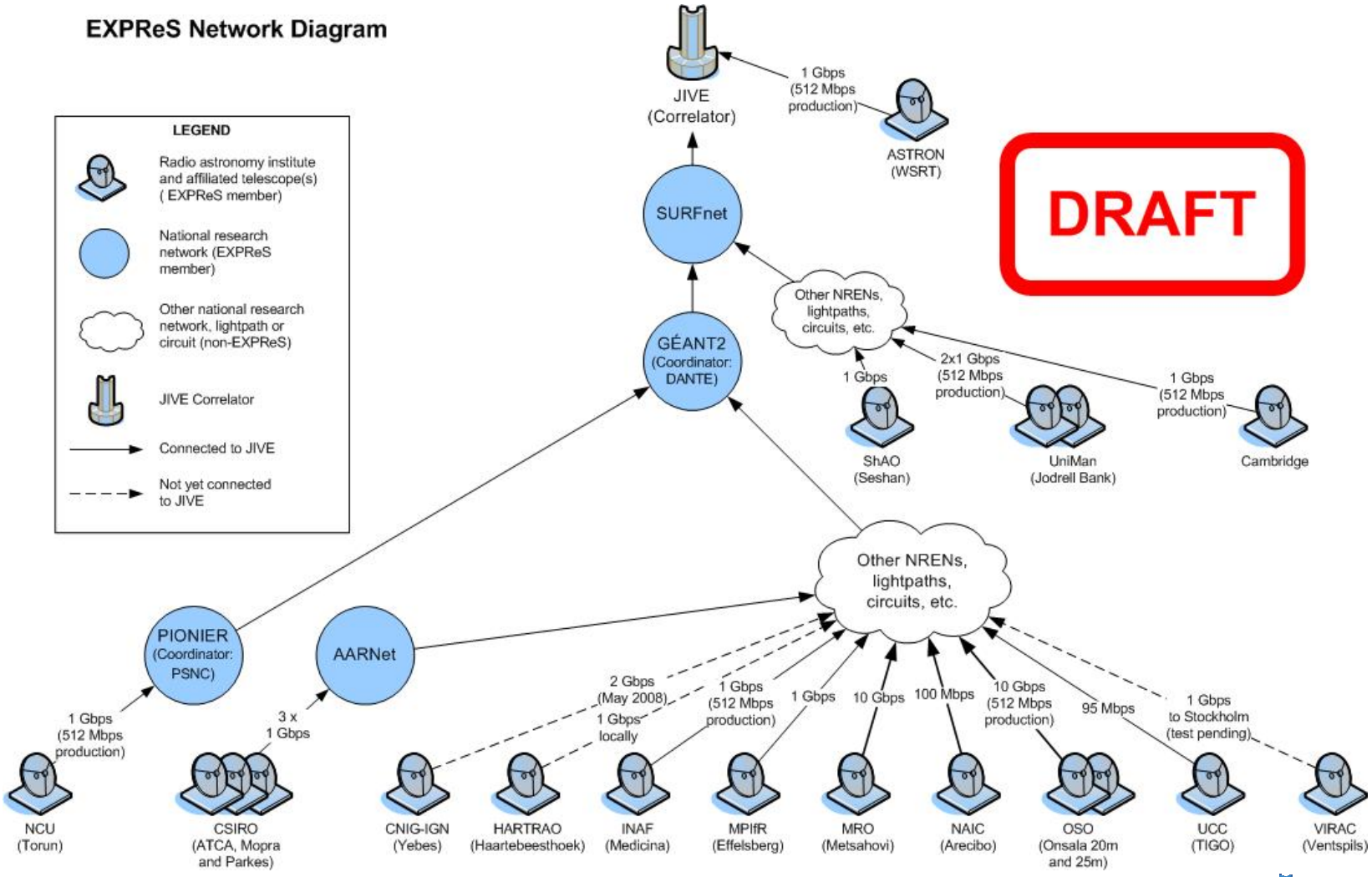
EXPReS Board Meeting

January 21st, 2009 @ Madrid, Spain

SA2 report

Paco Colomer

Site Connectivity



Connectivity status

Telescope	Current BW	Expected BW	Year	Notes
JIVE correlator	16 x 1 Gbps		2008	Connected
WSRT (14x25m)	1 Gbps			Connected
Onsala (20+25m)	10 Gbps			Connected
Jodrell Bank (76m)	2 x 1 Gbps	10 Gbps	2008	Connected
Cambridge (32m)	1 Gbps			Connected
Torun (32m)	1 Gbps			Connected
Metsähovi (14m)	10 Gbps			Connected
CNIG-Yebes (40m)	2 Mbps	1 Gbps	2009	In progress
Effelsberg (100m)	1 Gbps	4 Gbps		Connected
Medicina (32m)	1 Gbps			Connected
Sardinia (64m)		2,5 / 10 Gbps	2009	In progress
Shanghai (25m)	500 Mbps	1 Gbps	2008	Connected
Urumqi (25m)		1 Gbps	2009	
VIRAC (32m)	1 Gbps			Connected (test pending)
Hartebeesthoek (26m)		1 Gbps	unknown	Connected locally
Tigo (6m)	95 Mbps	155 Mbps	2008	512 Mbps (for tests)
Arecibo (305m)	512 Mbps 128 Mbps		2008	0400 – 1100 UT Rest UT
ATNF/CSIRO (Parkes, Mopra, ATCA)	2 x 1 Gbps			Connected

Deliverables

SA2 deliverables (as in EC contract DoW)

D#		Concept	Partner	Month	Status	Note
D13	SA2.01	Feasibility study of the last-mile connection to the nearest GEANT node for participant CNIG-IGN	CNIG-IGN	6	OK	
D14	SA2.02	Feasibility study of the last-mile connection to the nearest GEANT node for participant MPIfR	MPIfR	6	OK	
D15	SA2.03	Equipment of the last-mile infrastructure for participant INAF (telescope in Medicina)	INAF	6	OK	
D16	SA2.04	Feasibility study of the last-mile connection to the nearest GEANT node for participant CAS (Shanghai, Urumqi, ~~Mingantu, Nanshan~~)	CAS	6	Only Shanghai	
D17	SA2.05	Feasibility study of the last-mile connection to the nearest GEANT node for participant VIRAC	VIRAC	6	OK	
D18	SA2.06	Feasibility study of the last-mile connection to the nearest GEANT node for participant HRAO	HRAO	6	LocalOK	D129
D19	SA2.07	Feasibility study of the last-mile connection to the nearest GEANT node for participant NAIC (Arecibo)	NAIC	6	OK	
D20	SA2.08	Feasibility study of the last-mile connection to the nearest GEANT node for participant TIGO	TIGO	6	OK	
D21	SA2.09	Feasibility study of the last-mile connection to the nearest GEANT node for participant CSIRO	AARNET	6	OK	
D29	SA2.10	e-VLBI test observations, Medicina	INAF	10	OK	
D37	SA2.11	Equipment of the last-mile infrastructure for participant MRO	MRO	12	OK	
D38	SA2.12	Construction and equipment of the last-mile infrastructure for participant CNIG-IGN	CNIG-IGN	12	OK	Mn 36
D39	SA2.13	Construction and equipment of the last-mile infrastructure for participant MPIfR	MPIfR	12	OK	
D55	SA2.14	10 Gbps link upgrade between MERLIN and JIVE	JIVE	18	ongoing	Mn 26
D56	SA2.15	e-VLBI test observations, Metsahovi	MRO	18	OK	D131
D57	SA2.16	Construction and equipment of the last-mile infrastructure for participant Shanghai	CAS	18	OK	
D58	SA2.17	Construction and equipment of the last-mile infrastructure in AARNET to allow connection of participant CSIRO	AARNET	18	OK	D132
D59	SA2.18	Construction and equipment of the last-mile infrastructure for participant Urumqi	CAS	18	2009	
D62	SA2.21	Construction and equipment of the last-mile infrastructure for participant VIRAC	VIRAC	18	OK	D133
D63	SA2.22	Equipment of the last-mile infrastructure for participant NAIC	NAIC	18	OK	D147
D64	SA2.23	Equipment of the last-mile infrastructure for participant TIGO	TIGO	18	OK	D134
D65	SA2.24	AARNET connectivity enhancements	AARNET	18	OK	D135
D69	SA2.25	Feasibility study of the last-mile connection to the nearest GEANT node for participant INAF (Sardinia)	INAF	20	OK	D137
D70	SA2.26	10 Gbps link between UniMan and OSO for ultra-VLBI tests	UniMAN, OSO	20	OK	D138
D72	SA2.27	e-VLBI test observations, Effelsberg	MPIfR	21	OK	D144
D74	SA2.29	e-VLBI test observations, Yebes	CNIG-IGN	22	Ongoing	Mn 37
D86	SA2.30	Construction and equipment of the last-mile infrastructure for participant HRAO	HRAO	24	LocalOK	
D97	SA2.31	e-VLBI test observations, Urumqi	CAS	30	OK	
D100	SA2.34	e-VLBI test observations, VIRAC	VIRAC	30	2009	
D101	SA2.35	e-VLBI test observations, HRAO	HRAO	30		
D102	SA2.36	e-VLBI test observations, NAIC	NAIC	30	OK	
D103	SA2.37	e-VLBI test observations, TIGO	TIGO	30	OK	
D104	SA2.38	Construction and equipment of the last-mile infrastructure for participant INAF (Sardinia)	INAF	30	2009	
??		e-VLBI test observations, Shanghai	CAS		OK	

EXPReS SA2 Achievements

- Routine operations achieved up to 512 Mbps.

1) JIVE/SurfNet
- 8 x 1 Gbps lines available, several VLANs, + 1 x 5 Gbps.
- SurfNet will not charge any cost to EXPReS.

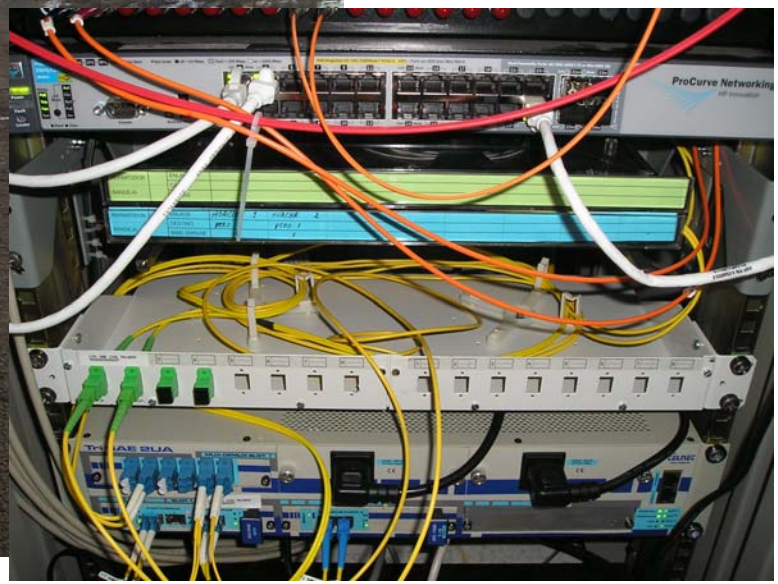
2) AARNET/CSIRO
- CSIRO telescopes connected at 1 Gbps.

3) ASTRON
- WSRT connected at 1 Gbps.

4) CNIG-IGN
- Last-mile connection is being built, and operation will start in February 2009. CNIG finances the infrastructure, and IGN will finance the link operation.

IGN fiber link at Yebes

Operational
in February
2009



EXPReS

EXPReS SA2 Achievements

5) HRAO

- Local 1 Gbps link in place. International connection difficult.

6) INAF

- Medicina connected; new fiber route will be ready in 2 months.
- Sardinia expects to connect in 2009. New undersee cables being placed.

7) MPIfR

- Effelsberg connected.
- Good spending profile.

8) MRO

- Connected at 10 Gbps.

EXPReS SA2 Achievements

9) NAIC

- Connected at 512 Mbps at 04:00 – 11:00 UT; rest at 128 Mbps.

10) MCU

- Torun connected at 1 Gbps; bursts at 10 Gbps.
- Requests larger EC grant to purchase 10 Gbps equipment.

11) OSO

- Connected at 10 Gbps (now using 1 Gbps routed-IP)

12) CAS

- Shanghai connected and tests performed. But involved in space missions.
- Urumqi is connected (on temporary circuit).

EXPReS SA2 Achievements

13) TIGO
- 90 Mbps available at REUNA; higher depends on RedClara.
- REUNA plans to upgrade to 1 Gbps in the future.

14) UniMAN
- Connected at 2x1 Gbps, plus a 10 Gbps link to Onsala.
- Will be able to claim more than the allocated EC grant.

15) VIRAC
- Connected at 1 Gbps.
- Lacks operability due to missing DBBC.
- Requests extra EC support.

Financial status

EXPReS SA2 COST TABLE

Year 2: March 1 2007 to Feb 29 2008

Eligible costs + forecast to end of project

DRAFT DRAFT

			all 3 years					YEAR 1 (March 1 2006 – February 29 2007)				Year 2			
no.	Name	Cost model	Cost	EU	Matching	Minimum Cost		Cost	EC YR1	EC excess	Cost missing	COST	EC	EC left	#
1	JIVE5	AC	20.000,00	10.000,00	10.000,00	20.000,00	1			0,00				10.000,00	1
2	AARNET	FC	50.000,00	10.000,00	40.000,00	20.000,00	2			0,00		13.449,00	6.724,50	3.275,50	2
3	DANTE	FC				0,00	3			0,00				0,00	3
4	PSNC	AC				0,00	4			0,00				0,00	4
5	SURFNET5	FC	180.000,00	28.000,00	152.000,00	56.000,00	5			0,00				28.000,00	5
6	ASTRON	FC	45.000,00	8.000,00	37.000,00	16.000,00	6			0,00				8.000,00	6
7	ONSALA	FC	530.000,00	97.000,00	433.000,00	194.000,00	7			0,00		2.316,00	1.158,00	95.842,00	7
8	CSIRO	FC	50.000,00	25.000,00	25.000,00	50.000,00	8	1.377.612,00	20.000,00	668.806,00		160.878,00	5.000,00	0,00	8
9	HARTRAO	FCF	55.000,00	8.000,00	47.000,00	16.000,00	9			0,00				8.000,00	9
10	INAF	FCF	2.780.000,00	108.000,00	2.672.000,00	216.000,00	10	4.975,00	4.975,00	-2.487,50	4.975,00	77.186,00	38.593,00	64.432,00	10
11	MPIFR	AC	2.250.000,00	210.000,00	2.040.000,00	420.000,00	11	2.524,00	2.524,00	-1.262,00	2.524,00	71.208,00	35.604,00	171.872,00	11
12	MRO	AC	330.000,00	38.000,00	292.000,00	76.000,00	12	26.968,00	13.248,00	236,00		27.104,00	13.552,00	11.200,00	12
13	NAIC	FC	396.000,00	48.000,00	348.000,00	96.000,00	13			0,00		342,00	171,00	47.829,00	13
14	NCU	AC	60.000,00	25.000,00	35.000,00	50.000,00	14			0,00				25.000,00	14
15	OSO	AC	115.000,00	30.000,00	85.000,00	60.000,00	15			0,00				30.000,00	15
16	SHAO	AC	650.000,00	73.000,00	577.000,00	146.000,00	16	407.279,00	25.000,00	178.639,50		313.377,00	48.000,00	0,00	16
17	TIGO	FC	70.000,00	30.000,00	40.000,00	60.000,00	17	25.789,00	21.547,00	-8.652,50	17.305,00			8.453,00	17
18	UNIMAN	AC	120.000,00	12.000,00	108.000,00	24.000,00	18			0,00				12.000,00	18
19	VIRAC	AC	151.000,00	40.000,00	111.000,00	80.000,00	19	209.662,00	40.364,00	64.467,00		14.632,00	0,00	-364,00	19
		TOTAL	7.852.000,00	800.000,00	7.052.000,00	1.600.000,00		2.054.809,00	127.658,00		24.804,00	680.492,00	148.802,50	523.539,50	

Financial status

YEAR 3 +														
TOTAL	Eligible	MaxEC	Actual EC	#	Name	TOTAL SA2	D Cost	Total eligible	TOTAL EU	D EU	EU excess	#	Name
	0,00	10.000,00	0,00	1	JIVE	0,00	-20.000,00	0,00	0,00	-10.000,00	-10.000,00	1	JIVE$
	0,00	3.275,50	0,00	2	AARNET	13.449,00	-36.551,00	6.724,50	6.724,50	-3.275,50	3.449,00	2	AARNET
	0,00	0,00	0,00	3	DANTE	0,00	0,00	0,00	0,00	0,00	0,00	3	DANTE
	0,00	0,00	0,00	4	PSNC	0,00	0,00	0,00	0,00	0,00	0,00	4	PSNC
	0,00	28.000,00	0,00	5	SURFNET	0,00	-180.000,00	0,00	0,00	-28.000,00	-28.000,00	5	SURFNET$
	0,00	8.000,00	0,00	6	ASTRON	0,00	-45.000,00	0,00	0,00	-8.000,00	-8.000,00	6	ASTRON
86.000,00	43.000,00	35.842,00	43.000,00	7	CNIG-IGN	88.316,00	-441.684,00	44.158,00	44.158,00	-52.842,00	-8.684,00	7	CNIG-IGN
	0,00	0,00	0,00	8	CSIRO	1.538.490,00	1.488.490,00	769.245,00	25.000,00	0,00	1.513.490,00	8	CSIRO
	0,00	8.000,00	0,00	9	HARTRAO	0,00	-55.000,00	0,00	0,00	-8.000,00	-8.000,00	9	HARTRAO
103.000,00	51.500,00	64.432,00	51.500,00	10	INAF	185.161,00	-2.594.839,00	92.580,50	55.068,00	-12.932,00	77.161,00	10	INAF
1.000.000,00	1.000.000,00	171.872,00	171.872,00	11	MPIFR	1.073.732,00	-1.176.268,00	1.073.732,00	210.000,00	0,00	863.732,00	11	MPIFR
18.450,00	18.450,00	11.200,00	11.200,00	12	MRO	72.522,00	-257.478,00	72.522,00	38.000,00	0,00	34.522,00	12	MRO
250.000,00	125.000,00	47.823,00	47.823,00	13	NAIC	250.342,00	-145.658,00	125.171,00	48.000,00	0,00	202.342,00	13	NAIC
20.000,00	10.000,00	25.000,00	10.000,00	14	NCU	20.000,00	-40.000,00	10.000,00	10.000,00	-15.000,00	-5.000,00	14	NCU
	0,00	30.000,00	0,00	15	OSO	0,00	-115.000,00	0,00	0,00	-30.000,00	-30.000,00	15	OSO
	0,00	0,00	0,00	16	SHAO	720.656,00	70.656,00	360.328,00	73.000,00	0,00	647.656,00	16	SHAO
	0,00	8.453,00	0,00	17	TIGO	25.789,00	-44.211,00	12.894,50	21.547,00	-8.453,00	-4.211,00	17	TIGO
17.855,00	8.927,50	12.000,00	8.927,50	18	UNIMAN	17.855,00	-102.145,00	8.927,50	8.927,50	-3.072,50	5.855,00	18	UNIMAN
	0,00	-364,00	0,00	19	VIRAC	224.294,00	73.294,00	112.147,00	40.364,00	364,00	184.294,00	19	VIRAC
1.495.305,00	1.256.877,50	523.539,50	344.328,50			4.230.606,00	-3.621.394,00	2.688.430,00	620.789,00	-179.211,00	3.430.606,00		

EXPReS SA2 forecast wishes 2008

- Increase of production network to 1 Gbps (tests done!)
- Effelsberg will join the production network
- Yebes (CNIG-IGN) will connect @ 1 Gbps in May 2008
- VIRAC will demonstrate astronomical performance
- Medicina will change to shorter (48 km) dark fiber – with new equipment will allow up to 10 Gbps
- Connectivity test: MRO/OSO – JBO at 10 Gbps
- Connectivity test: NAIC – TIGO – JIVE at 500 Mbps
- Urumqi will connect in 2009

ALL PARTNERS are to send copies of their C-forms, JoR, and audit certificates to the EXPReS Project Manager!!

EXPReS SA2 achievements

- Increase of production network to 1 Gbps (tests done!)
- Effelsberg will join the production network
- Yebes (CNIG-IGN) will connect @ 1 Gbps in Feb 2009
- VIRAC will demonstrate astronomical performance
- Medicina will change to shorter (48 km) dark fiber – with new equipment will allow up to 10 Gbps
- Connectivity test: MRO/OSO – JBO at 10 Gbps
- Connectivity test: NAIC – TIGO – JIVE at 500 Mbps
- Urumqi will connect in 2009

Summary

- Major deliverables achieved.
- Most partners have lower costs, as expected.
- Total SA2 cost lowered from 7.8 M€ to 4.2 M€. EC contribution of 0.82 M€ may not be used (only 0.62 M€ spending “secured”, but eligible is 2.7 M€).
- Relocation of EC grant from low spending partners (HRAO, INAF?, NCU, OSO, CNIG-IGN) to other (MPIfR, VIRAC?, CSIRO, TIGO?) to be discussed.
- SurfNet will not charge any cost to EXPReS.
- IGN will be third-party to CNIG, to finance cost of link operation at Yebes.