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ATNF Operations

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ATUC, Oct 2011

CSIRO

Today's program – Operations focus

- ATNF Operations Strategy
  Science Ops; Engineering Ops

- Mopra observing statistics; impact; time allocation (Jessica Chapman)
- Community Forum

- Parkes remote operation (Dave McConnell)
- Parkes instrumentation choices (Ettore Caretti)
- Parkes receiver choices
- Discussion & continuing consultation

- Also – ASKAP, Technologies, Astro reports

ATNF strategy – for consultation

- New funds for operating ASKAP but insufficient to operate all current facilities

- Three strategies considered
  1. Substantially revise Parkes operations (preferred).
  2. Substantially revise ATCA operations
  3. Moderately revise Parkes and ATCA operations

  - Search for external organisations to fund and operate Mopra under all scenarios

- Approximate breakdown (2010-11)
  - Parkes $4.5m
  - ATCA $5.5m
  - Mopra $0.5m

} Including common costs, e.g. time allocation, Marsfield lodge

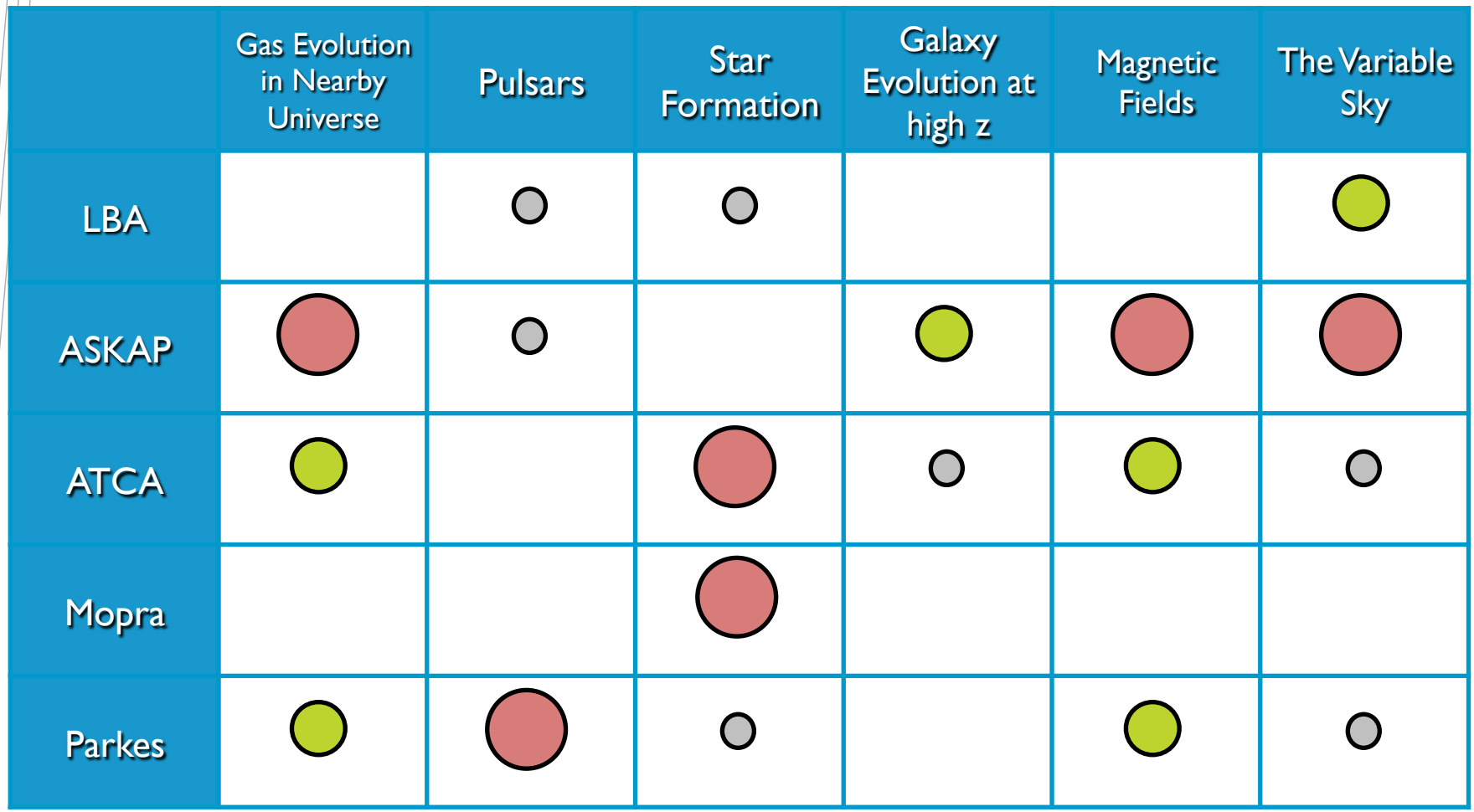
ATNF strategy

Factors in preferring the first scenario (reduce Parkes costs):

- The broader science scope and the larger, more diverse user base of the ATCA
- The opportunities for the ATCA to provide high frequency follow-up to ASKAP
- The viability of a strong science case for Parkes, through high impact, large-scale projects, even with the changed model
- The remarkable re-generation of the ATCA through upgrades to the front-ends (16cm receivers, 3/6cm receivers, high frequency capability) and back-end (with the flexibility and bandwidth coverage of CABB).

Positioning Parkes to remain a high-impact instrument

Science Priority Areas



(ATNF Science Priorities: Science in 2010-2015; Ball et al. 2008)

The ATCA

- User-operator model to be maintained
- Full support observing from Narrabri or Science Operations Centre (support from either place; Duty Astronomers at Narrabri)
- Remote observing available to qualified observers
- Broad user base to be maintained

Mopra (October 2012)

- CSIRO to seek another organisation to operate
- Transfer of ownership could occur
- Our current capabilities for maintenance and support available to the new operator, charged at our cost

- Cost of operating Mopra – $500k/yr
  - 1/3 Science Ops
  - 1/3 Engineering Ops (Narrabri)
  - 1/3 Power, network, procurement, transport, etc

  - Excludes depreciation / capital injections

- Will work to retain Mopra in LBA if another org. operates
- CSIRO to assist with the design of alternate operating models

Parkes – the model

- Remote operations (Oct 2012)
  - New telescope protection system
  - New observing safety procedures
  - Observers quarters would be closed at some point
  - Operated from SOC or anywhere on the internet
  - Observer support limited

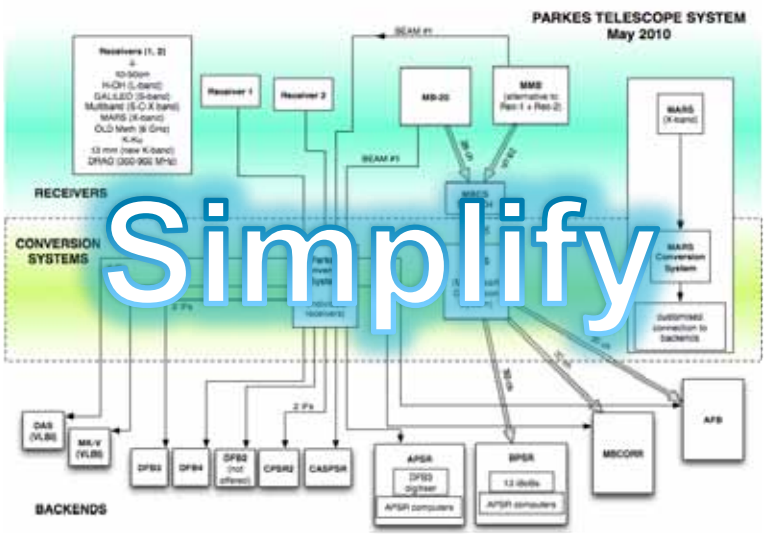
- Encourage experiment/campaign mode projects
  - But recognising level of onsite support available

- Improve power reliability

Parkes – instrumentation

- Long-term strategy
  - Broad-band single-pixel receivers (e.g. Manchester talk)
  - PAF being actively explored – LIEF proposal being planned

- Short/intermediate-term strategy (Oct 2012)
  - Make choices to reduce support costs
  - Improve reliability and/or remote support



Science Operations Centre – current concept

- "Normal" control for Parkes, ASKAP, LBA
- Principally daytime support (limited AH support from Narrabri DA?)
- Visitor desks and meeting rooms/ breakout space
- Creative/Interaction area
- Accommodation (modest upgrades) and meals

Next Steps

- Remote observing station for Parkes
- Modest capital request for FY 2011-12 in progress

User Policies

- ASKAP user policy adopted in 2009 by CSIRO
  - AT Steering Committee (ATSC) to take responsibility for these when science operations begin
- Existing user policies for ATCA/LBA adopted
  - Some minor updates needed (to ATSC)
- Mopra user policies the responsibility of the operating organisation
- Time Assignment Committee (TAC) appointed by ATSC

Science Operations

- eVLBI demonstrations with ASKAP and Warkworth
  - High profile demo during SKA forum in July
- Data access at observatories
  - ATCA users encouraged to bring a portable hard drive and connect via linux machines in observers area (which are on blue cables)
- Addition of data products to ATOS
  - MALT-90 first season data now available, discussions with other large Mopra projects underway
- Mid-week RFI
  - Appears to be less frequent in recent times, but also less-confined to mid-week periods (which makes it harder to mitigate against in scheduling)
- CASS Radio School and Parkes Open Days
  - Operations staff helped contribute to these well attended and successful events

ATCA imaging – highest priority additions

Feature	Priority	Estimated effort
MSMFS Clean (documentation)	1	1 week
MSMFS Clean (scripts)	1	2–3 weeks
✓ Bandpass Spectral curvature	2	2 days
✓ Delay calibration	2	3 days
✓ Freq dependent Leakage terms	2	2–3 weeks
✓ Wide band primary beam (linmos fix)	2	3 days
Image size limits	3	1-2 days/task
Flagging (documentation)	3	2–3 days
Invert weighting scheme issues	3	3 days
Total		2–3 months

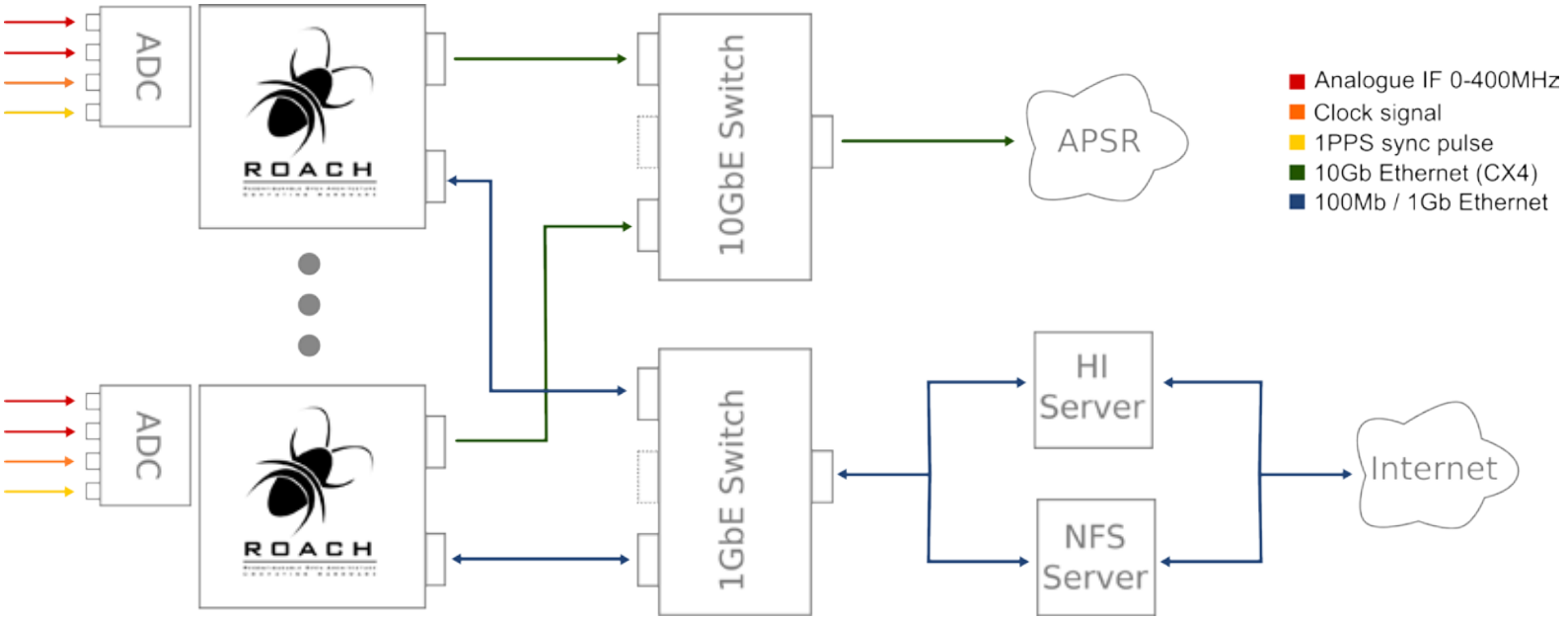
Around the Observatories

- Parkes
  - MMB and CPSR2 decommissioned
  - Analog Filter Bank will not be offered from 2012 April 1
  - First HIPSR tests successful
- Tidbinbilla
  - OTF mapping development continuing
  - New 22 GHz capability being implemented
- ATCA
  - Full 64MHz with 16 zooms per IF expected by end of 2011
  - WVRs installed (ref. Balt Indermuehle's talk yesterday)
- Mopra -- Strong demand for 11OCT semester
- LBA -- Addition of 2 AuScope antennas in 8.4GHz LBA run as demo

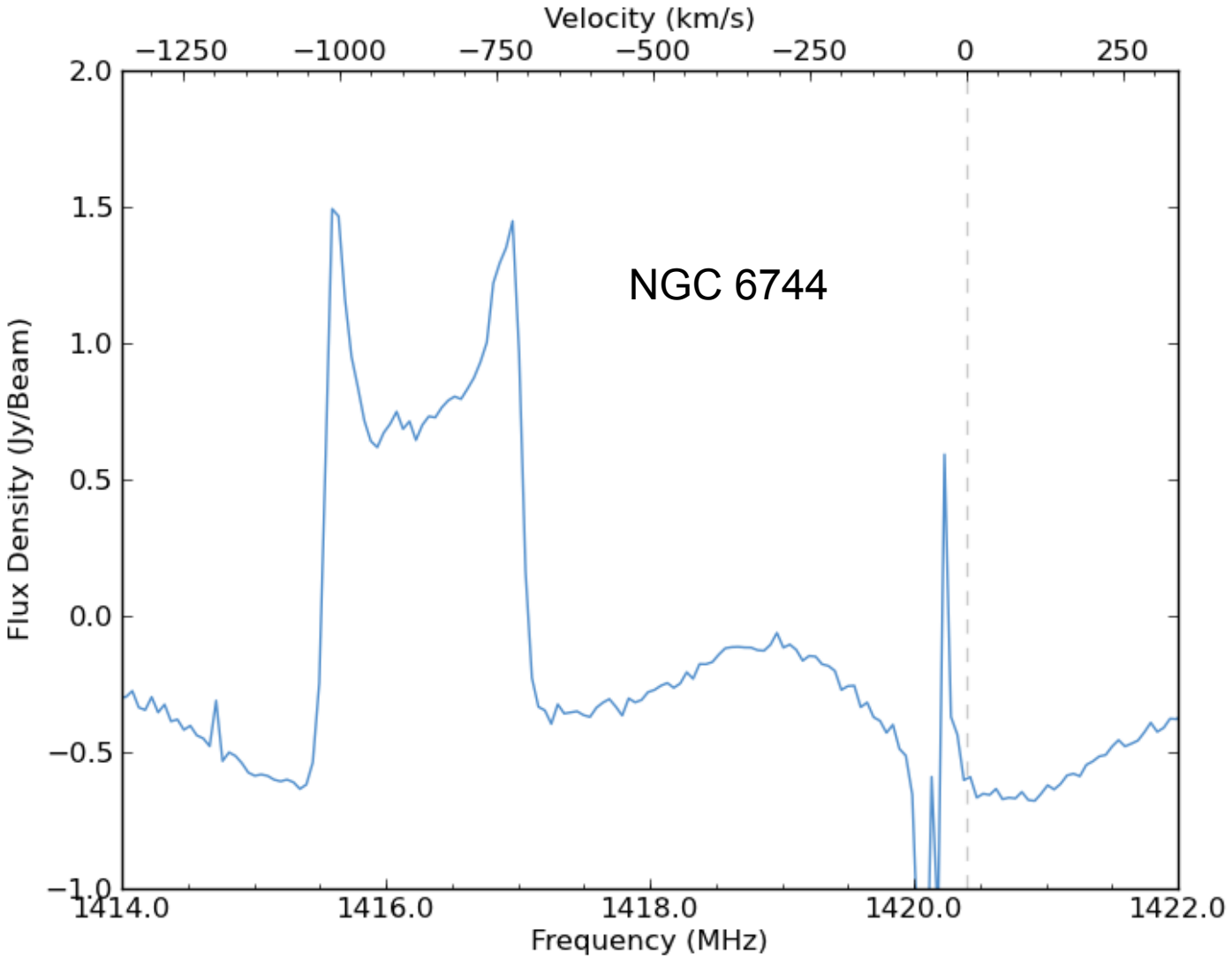
HIPSR – Guest & National Facility Instrumentation

UWA, Swinburne, Curtin, Oxford, CSIRO

- New multibeam spectrometer/filterbank
- Bandwidth of 500 MHz
- Multi-bit for better efficiency and dynamic range
- RFI suppression



HIPSR First Light – 7 Oct 2011



Engineering Operations
Parkes Drive System Upgrade

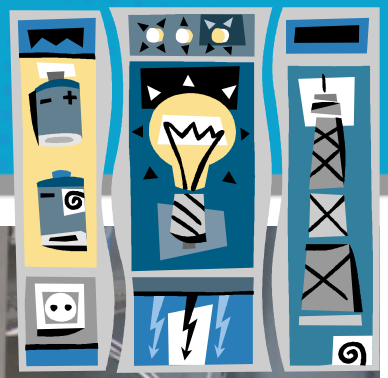
• (**March 2011**): Old **M**anual **C**ontrol **P**anel removed & replaced with a new **M**aster **C**ontrol **P**anel.

- New MCP provides for safe remote operation.

- Fully documented hardware, software and a working spare and development platform.

• (**December 2011**): Professional Electrical Engineer Andrew Hunt retires on 13 December 2011
- over 40 years of service!

Parkes Power Upgrades



Power systems

- New Cummins 350 kVA genset
- New diesel tank
- Remote monitoring, diagnostics
- Main UPS upgrade completed
- Drive System UPS

Electrical Staff Movements

- Rod Tomlinson (pictured) left for the mining industry.
- Replaced by Brian Madden, from the mining industry.
- Recruiting an Industrial Electrical Technician for Parkes

Parkes High Voltage Infrastructure

Ageing (> 50 yo) power systems

- Old 500kVA transformer (pictured)
- New 750kVA transf.
- Regulator, Switchgear
- U/G cables
- Switchboards
- Lightning protection

FOR

- Robustness
- Reliability
- Remote Operation

Vale, Alan Laing

- Electronics Technician, CASS Parkes, passed away last week.
  - Alan's helpful manner and spontaneous good humour will be missed by all.