



International
Centre for
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Research



Update on ERIDANUS Project

Slava Kitaeff

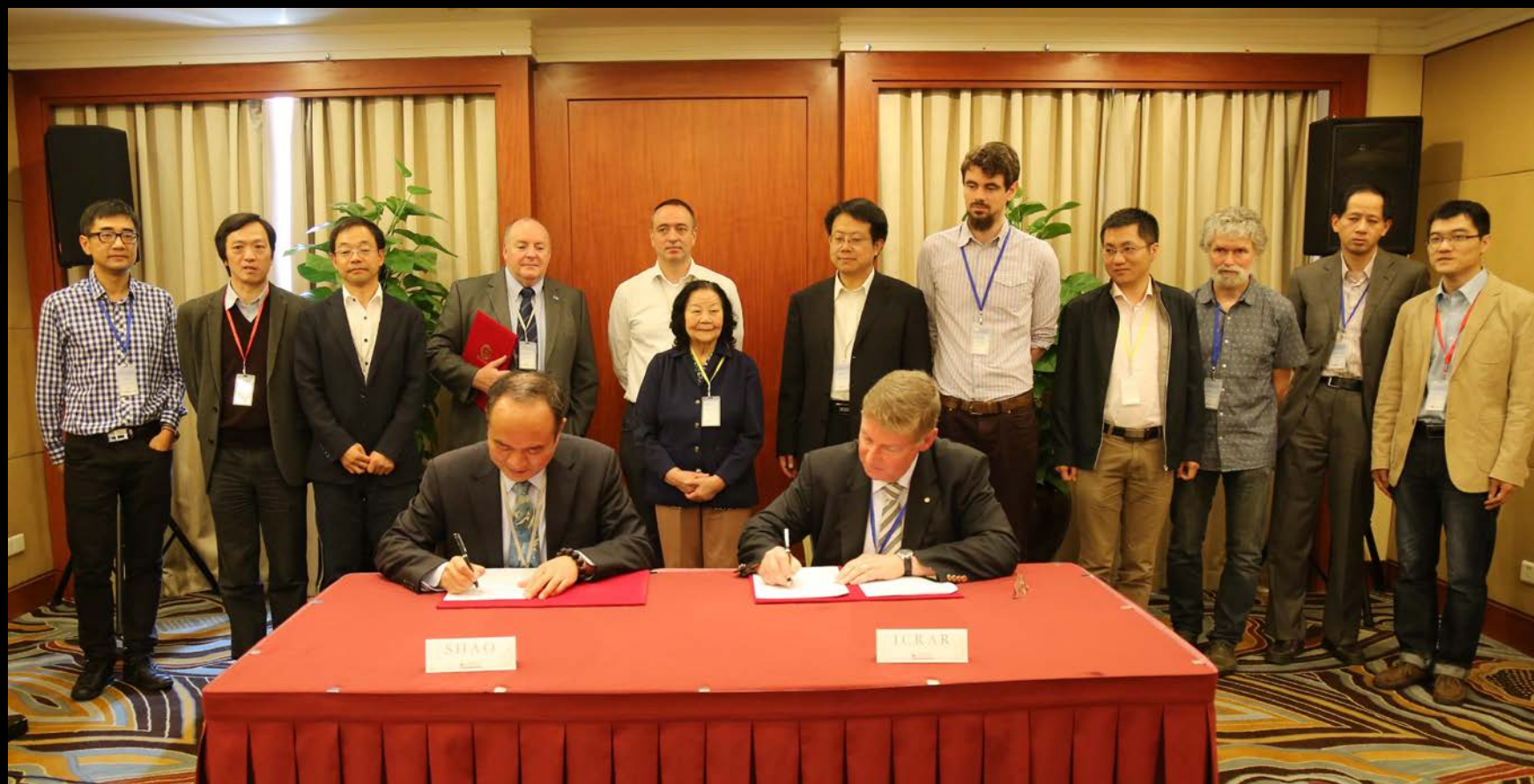
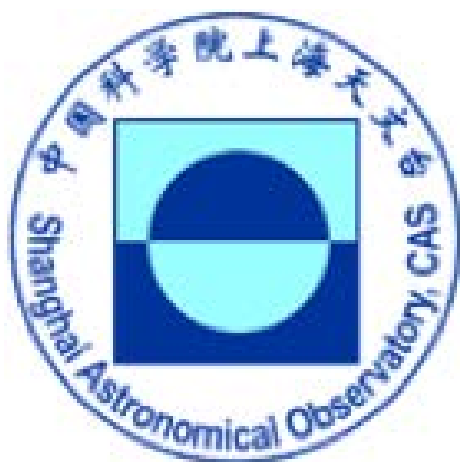
AusSRC Technical Project Lead



THE UNIVERSITY OF
WESTERN AUSTRALIA



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May 11, 2016

- Exchange of academic personnel for collaborative visits on data intensive astronomy
- Workshops and conferences on SKA and data intensive astronomy
- Co-supervision of PhD students on SKA Science Data Processor-related research projects
- Planning of the setup and operations of SKA Regional Centers in the Asia-Pacific region.



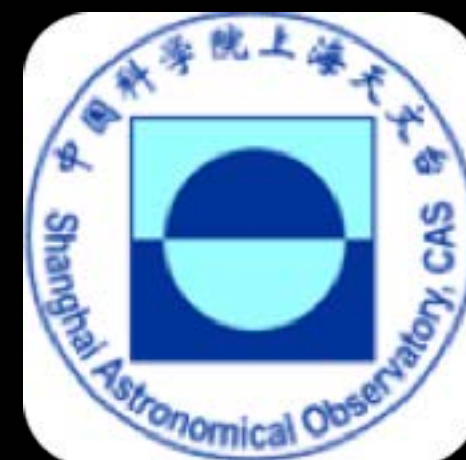
ERIDANUS Project

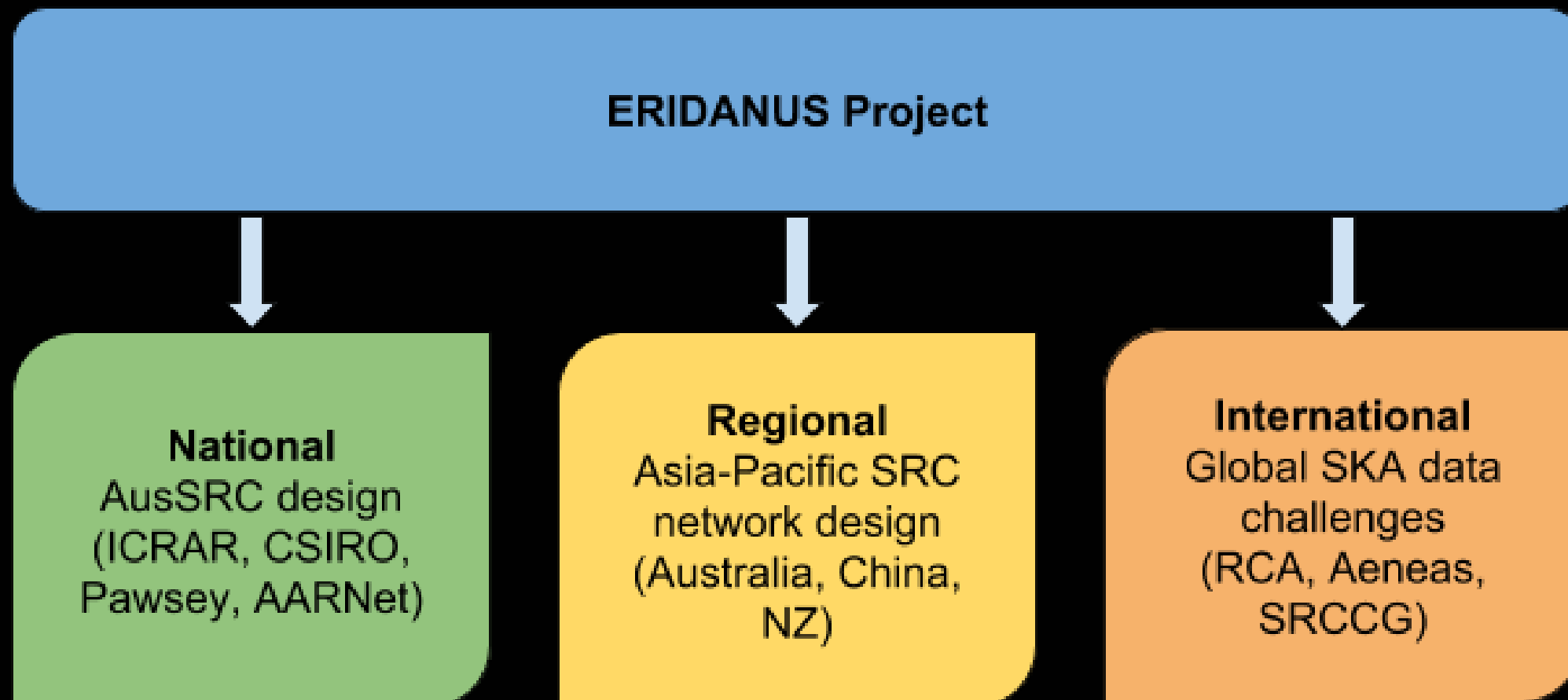


Exascale Research
Infrastructure
For Data In Asia-Pacific
Astronomy
Using The SKA

- The ERIDANUS Project is a three year design study commenced in April 2017, aimed at deploying prototype data intensive research infrastructure and middleware, between and within Australia and China, capable of addressing [SKA](#)-class data and processing challenges.

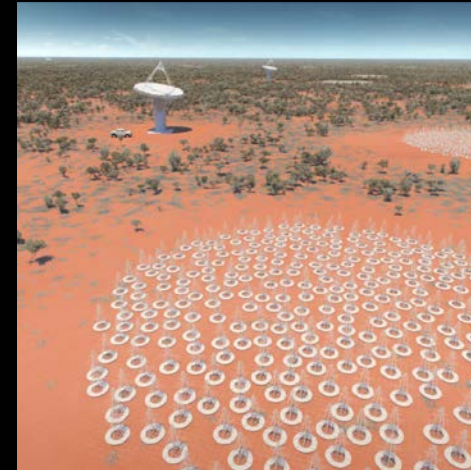
<https://eridanus.net.au>





ERIDANUS focuses on:

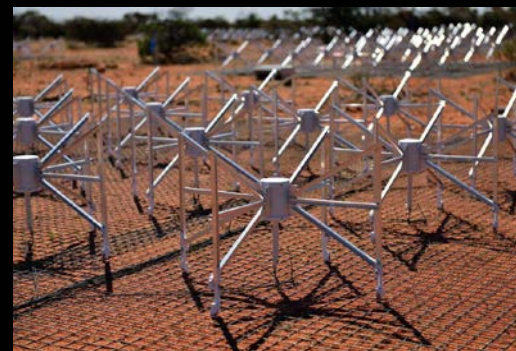
- Data flow architectures
- Execution frameworks
- Data storing and archiving
- Strategies and systems to monitor and control cost
- Networking optimisation
- Post-processing
- Cloud computing option
- Data analysis and visualisation



SKA-1 Scale



Technology Development Projects



Precursor Science Projects

Up to 300 PB/y



15 PB/y

2017: 1st Australia-China SKA Big Data Workshop



Hackathon

10 Themes

2018: 2nd Australia-China SKA Big Data Workshop

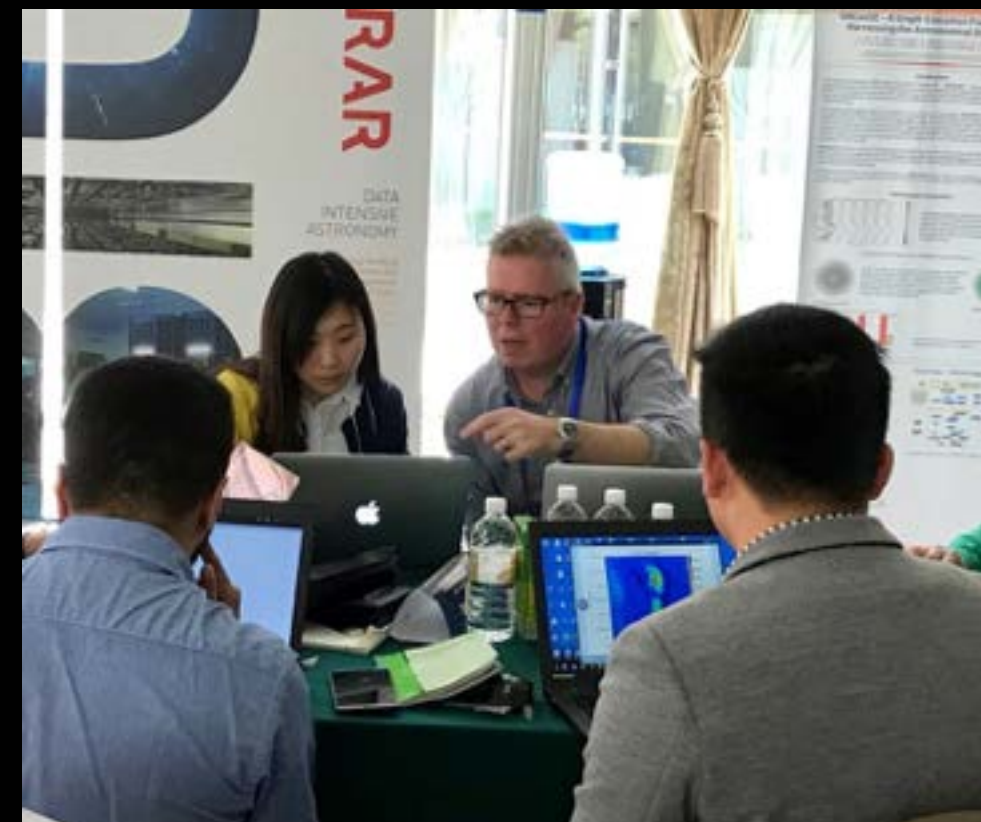


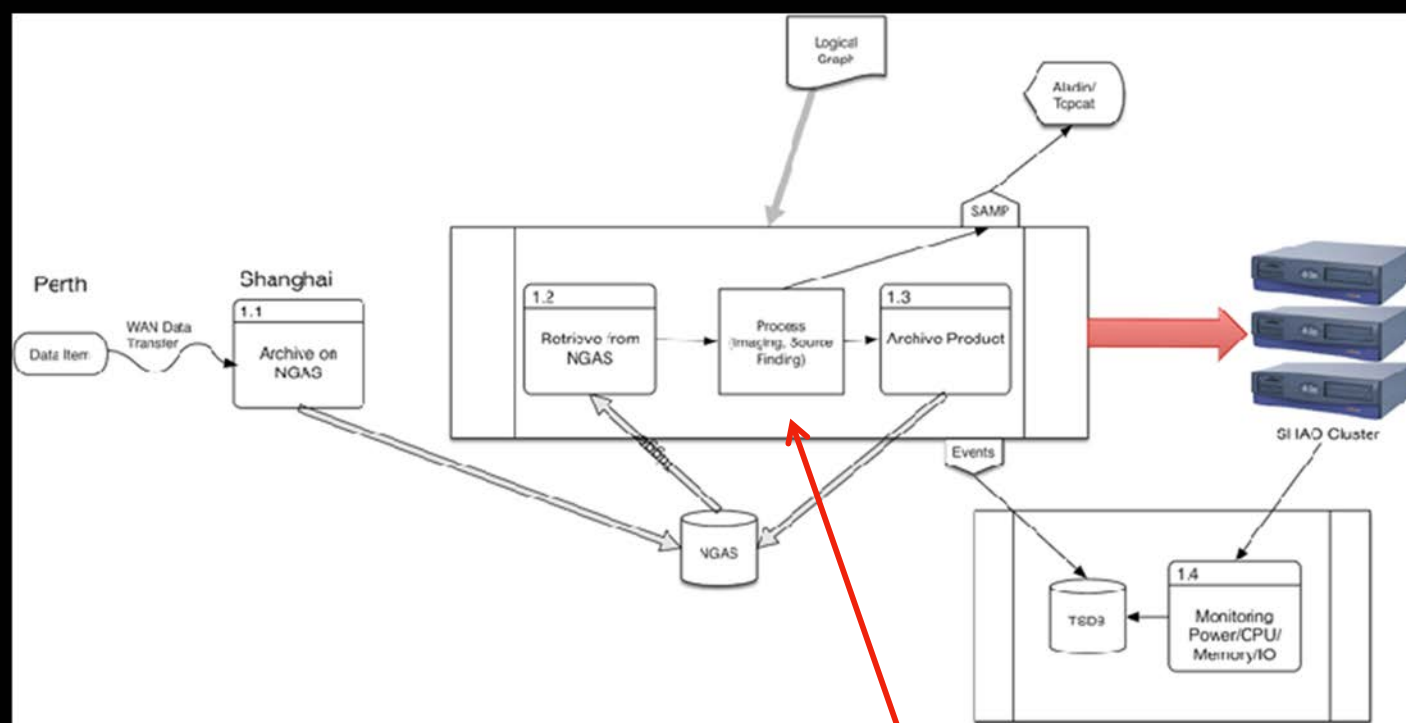
Prototyping

6 Work Packages

Ten themes

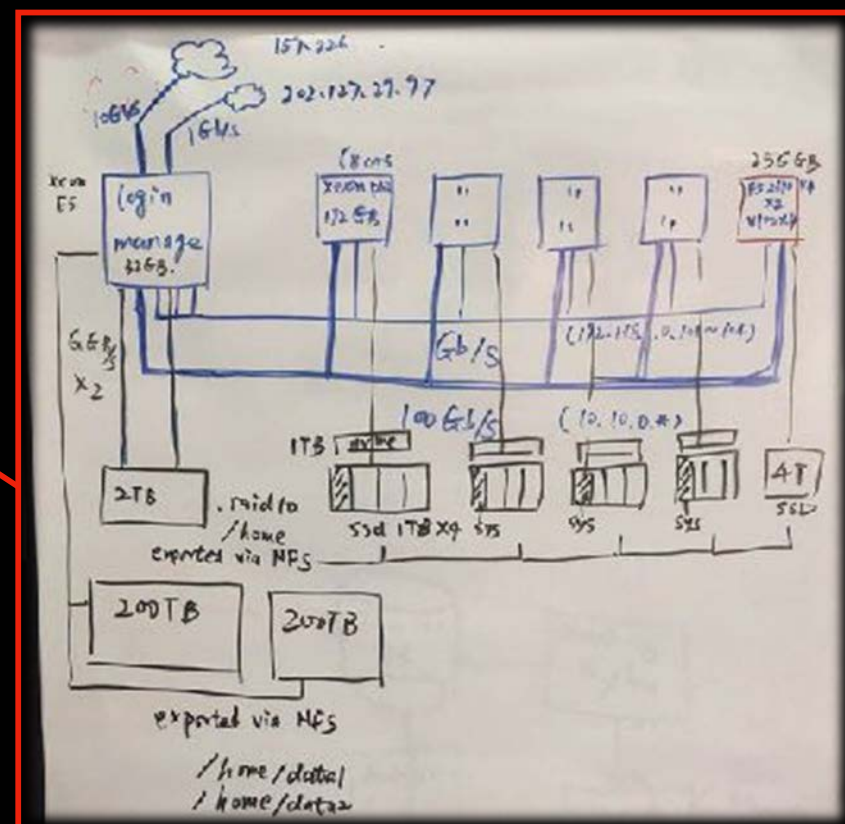
1. Signal and Data Transport
2. Telescope monitoring and control network and software at SKA scale
3. Near real-time, imaging and non-imaging algorithms and software components
4. Execution frameworks and software systems
5. Collaborative data reduction support software
6. Data management software systems
7. Data mining technologies
8. Hardware platforms for all of the above
9. Global data dissemination at SKA scale and VO software and technologies
10. Applicable advanced or future technologies





WORK PACKAGES

1. Data Transfer
2. Pipelines & Algorithms
3. Execution Framework
4. Global Data Management
5. Hardware/Software Co-design
6. System Integration



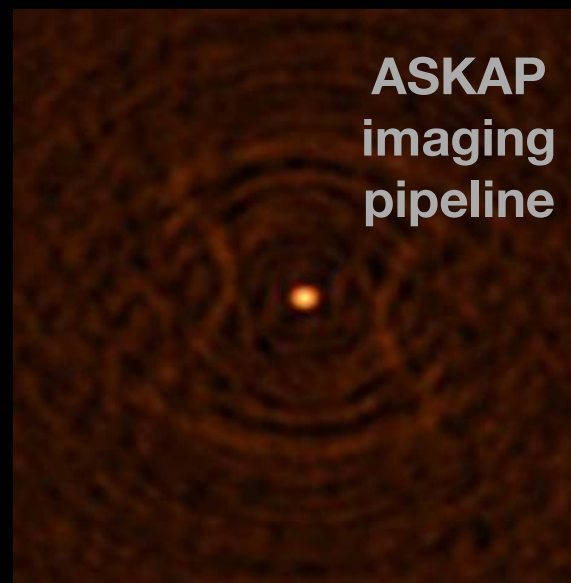
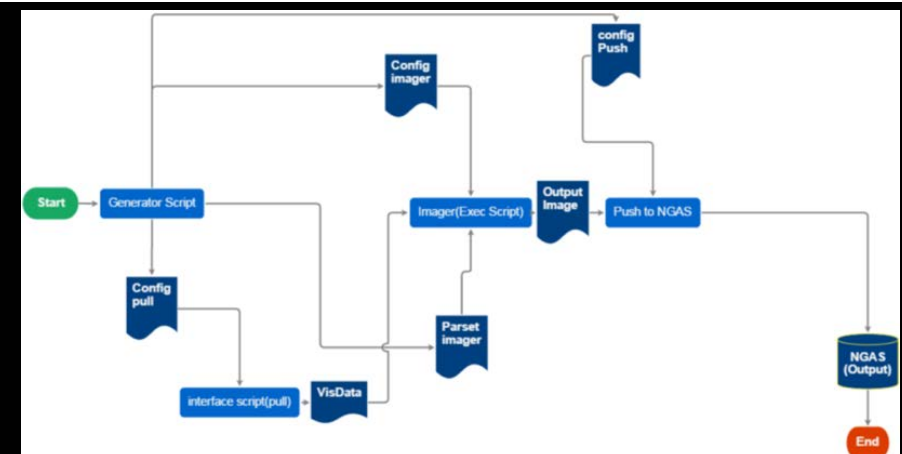
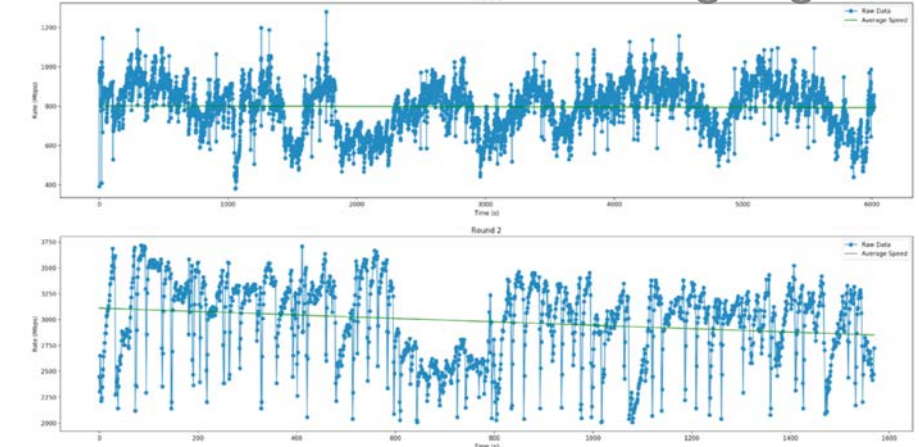


- Data transfer and data management tools
- 3 imaging pipelines (ASKAP and MWA) using DaLiuGE
- System monitoring and analysis tools
- VO interface to Pawsey & SHAO data archives
- Integration & Acceptance framework based on SCRUM agile development

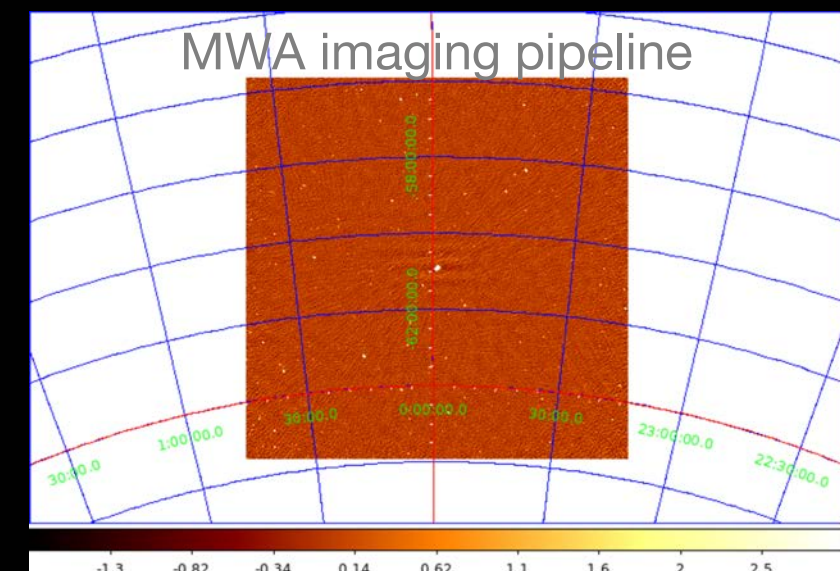


- 0.8-→3 Gbps data transfer Perth (Pawsey) to Shanghai (SHAO)
- Automatic MWA and ASKAP data transfer
- Automatic pipeline deployment and execution on data arrival
- Functioning MWA and ASKAP pipelines
- Comprehensive system monitoring and reports

AARNet and CERNet working together



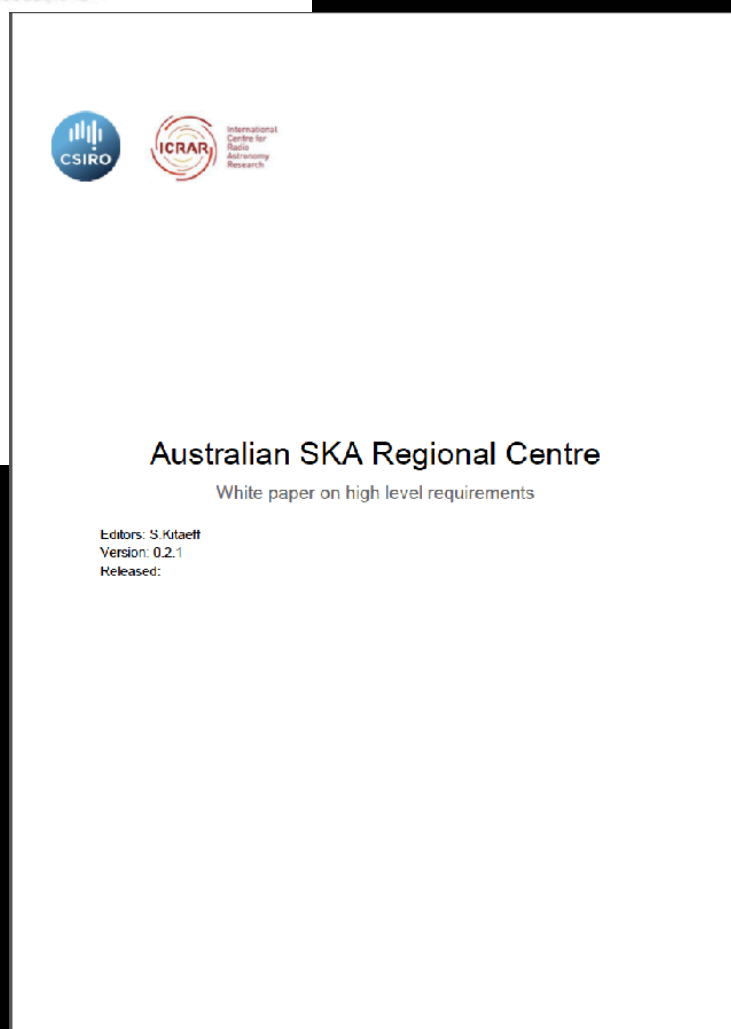
ASKAP
imaging
pipeline



1st AusSRC Workshop

November 2017, Perth

- Overviewing activities, science and technical projects that are within the scope of AusSRC.
- Developing the high level requirements and a roadmap for the AusSRC, with an initial focus on data from the Australian precursors (MWA and ASKAP).
- Discussing collaboration and common goals of the AusSRC with other SRCs around the globe, especially in the Asia-Pacific region.
- Learning from other international regional science centres around the world.



March-April 2018 (Perth and Sydney)



Australian Government
Department of Industry,
Innovation and Science

SKA
SQUARED PLANET SKA
Australia

CSIRO

ICRAR
International
Centre for
Radio
Astronomy
Research

PAWSEY
supercomputing centre

Australian SKA Regional Centre

Industry Information Session

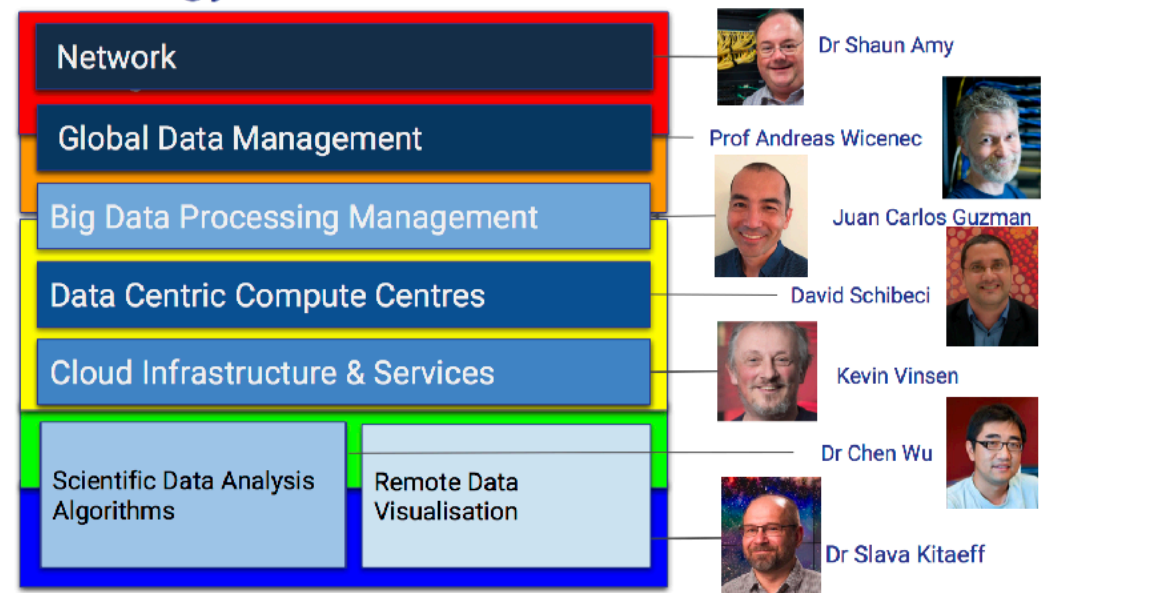
With support

Innovation
Central
A collaboration led by

Atomic Sky

Over 100 companies (WA+NSW)

Technology Stack






Reports

Documents - Asia-Pacific SKA x

https://eridanus.net.au/?page_id=296

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Asia-Pacific SKA Regional Center & ERIDANUS Project Exascale Research Infrastructure for Data in Asia-Pacific Astronomy Using The SKA



ERIDANUS Documents Contact

Latest updates

AusSRC White Paper release

2nd Australia-China SKA Big Data Workshop

ASRC Industry Briefing Events in Perth and Sydney

Documents


[AusSRC White Paper - v1](#)

[1st Australia-China SKA Big Data Workshop, Apr 2017 \(report\)](#)

[Australian SKA Regional Centre Workshop, Nov 2017 \(summary\)](#)

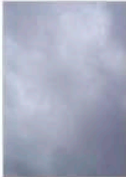
[2nd Australia-China SKA Big Data Workshop, Apr 2017 \(report\)](#)

Related Posts



AusSRC White Paper release

On 27-29 November 2017, in Perth, ICRAR and CSIRO hosted an Australian SKA Regional Centre Workshop....



Australian SRC workshop (November 2017)

Monday, 27th Nov 9:00 Intro and welcome 9:10 Antonio Chrysostomou (SKAO, UK) - International SKA R...

CSIRO

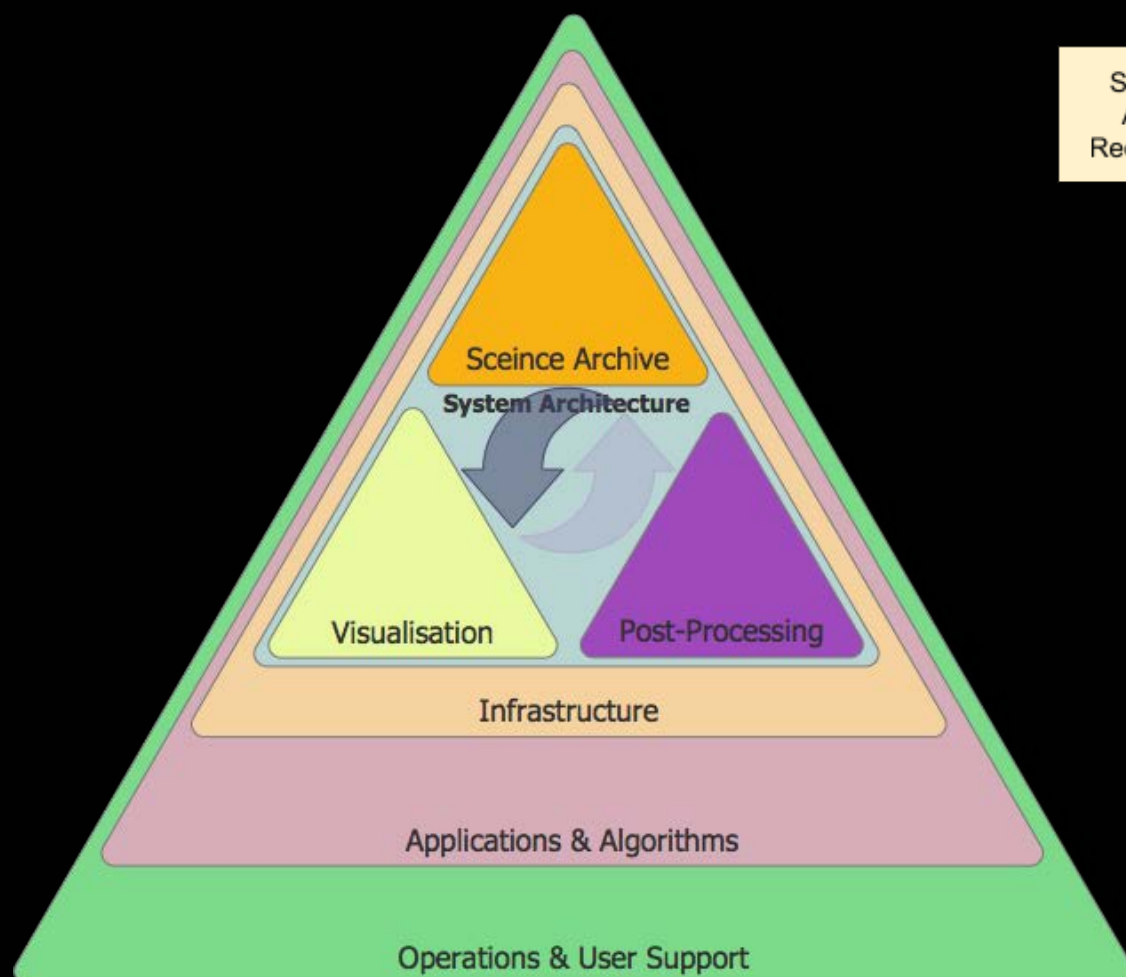
ICRAR

International Centre for Radio Astronomy Research

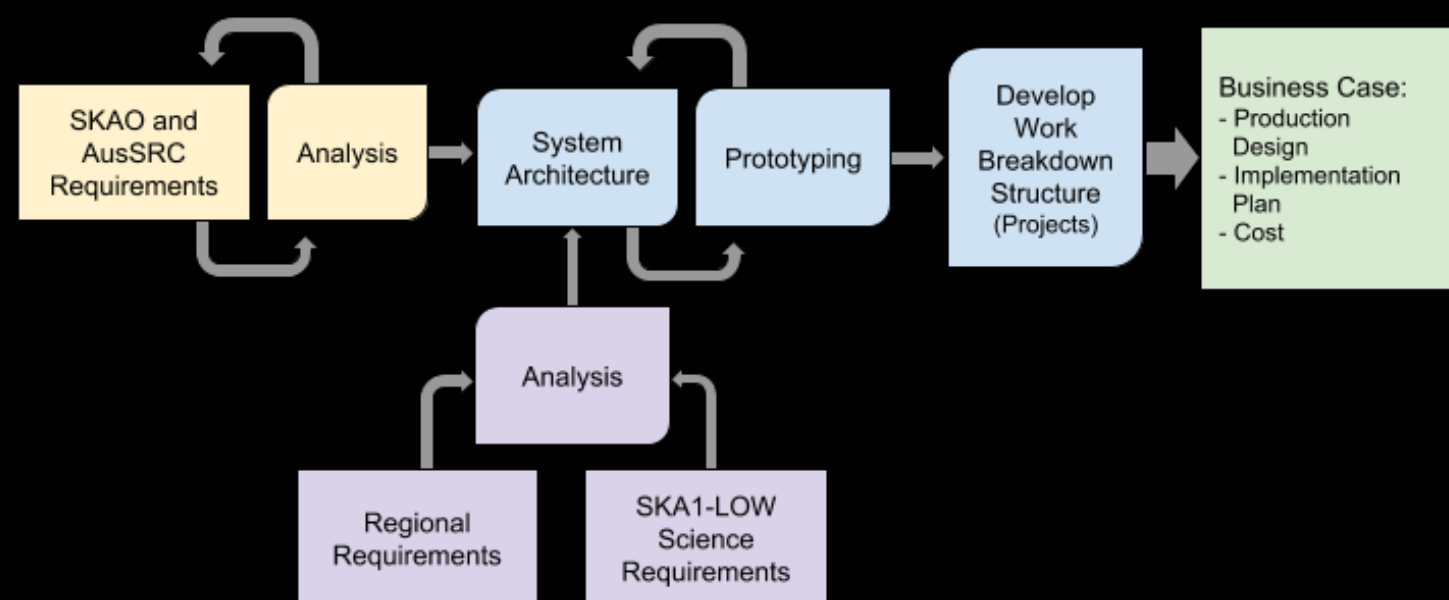
中国科学院上海天文台
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SKA
SQUARED ELEMENTARY ARRAY

<https://eridanus.net.au>



What (Project Domains)



How (Project Flow)

-end-