



SKAO and the SRCNet

Rohini Joshi - Operations Data Scientist, SKAO*

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About myself

Engineer, developer

Product Owner, Product management and architecture support

Kubernetes enthusiast



SRC design

Domain driven design (!)



www.skao.int



Hello! Find me on [LinkedIn](#) or rohini.joshi@skao.int

Jodrell Bank, Cheshire, UK. Photo captured by Nick Rees



SKAO and the SRCNet

- SKAO Vision of the SRCNet
- SRCNet v0.1
 - Functionality (theory)
 - Operations (practical)
- SRCNet v0.1 and the Swiss SRC



Composite image of the SKA telescopes, blending real hardware already on site with artist's impressions.



SKA-Mid in South Africa



- Total area cleared on the northern spiral arm (nearly complete)
- Trenching from CPF to the Core
- Mesh being laid on S8, 9, 10



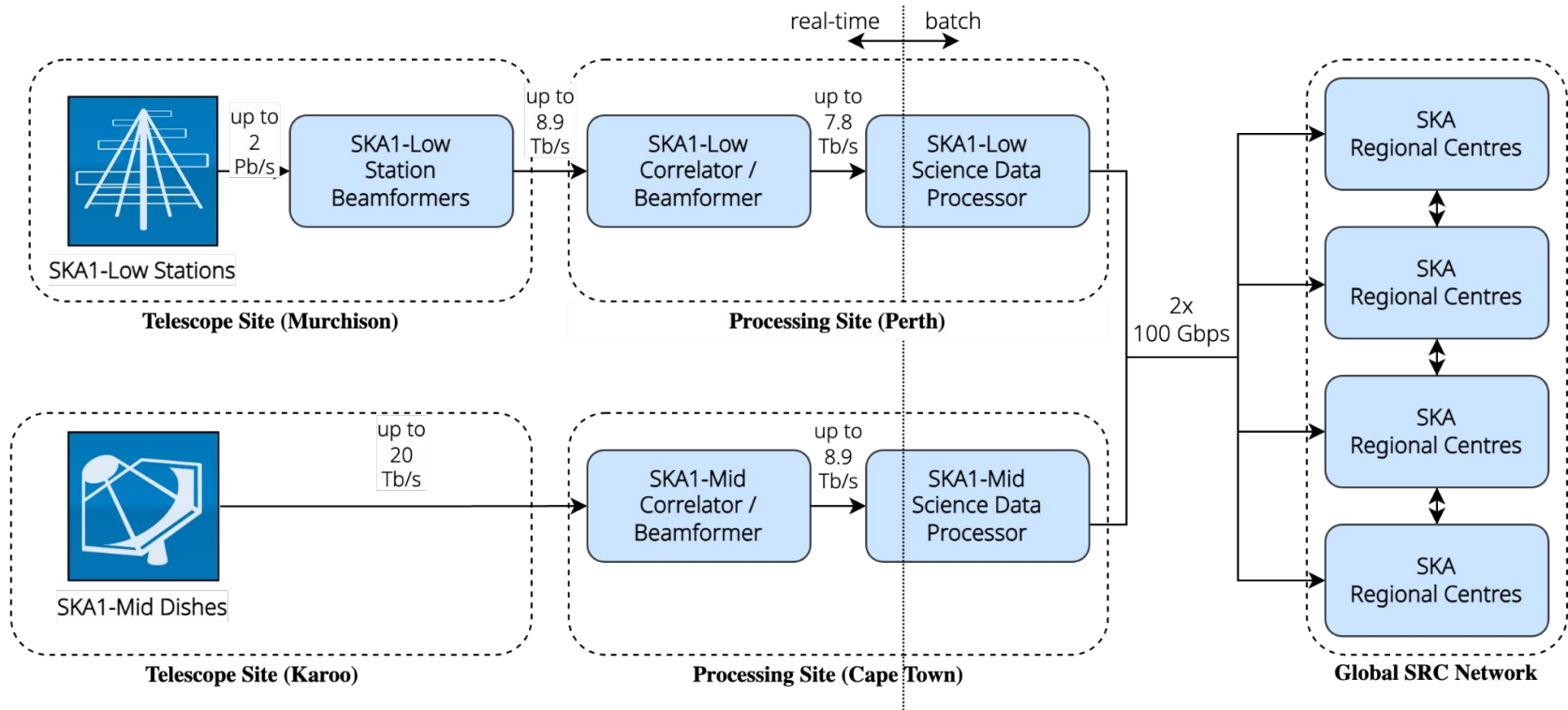
- Ships with the first SKA-Mid dishes due to dock in Cape town Harbor very soon.
- RFI Shielded containers being manufactured in Gauteng
- Borrow pits and new roads under construction



SKA-Low in Australia

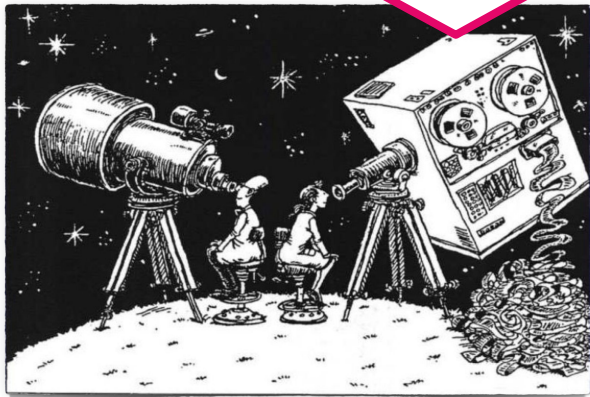


SKA Data Flow



Staged Rollout Plan

Software will drive all aspects of the SKA observatory ...

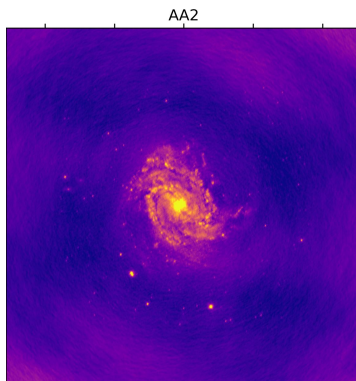


The software will need to scale and keep up as we build the instrument

Rome wasn't built in a day...

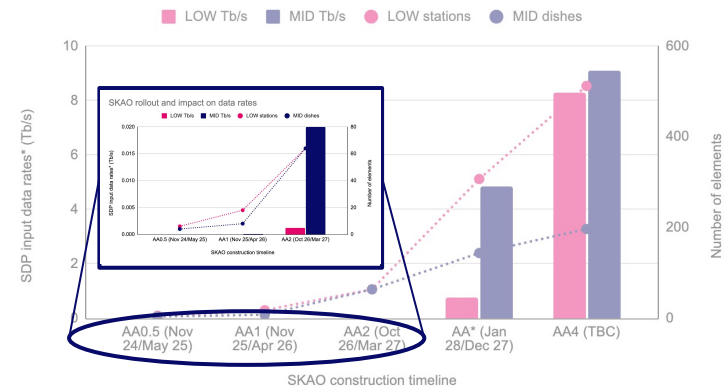


Build, deploy, test, verify a working system at each Array Assembly



Simulation of the M83 galaxy, as might be observed by SKA-Mid for AA2. For demonstration purposes only
Credit: Sarvesh Sridhar

SKAO rollout and impact on data rates

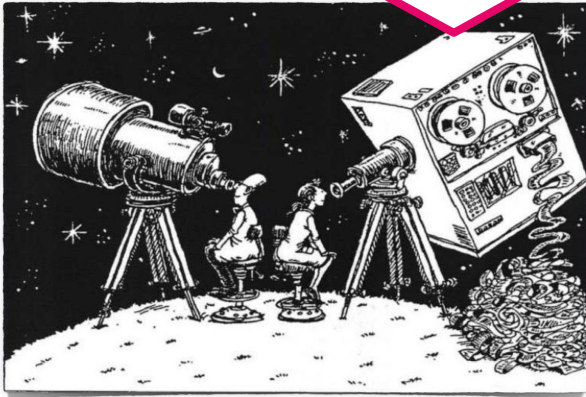


*Approximation, indicative trend for data rates

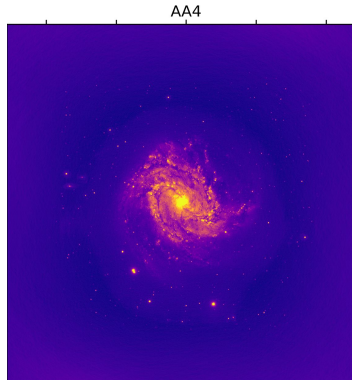


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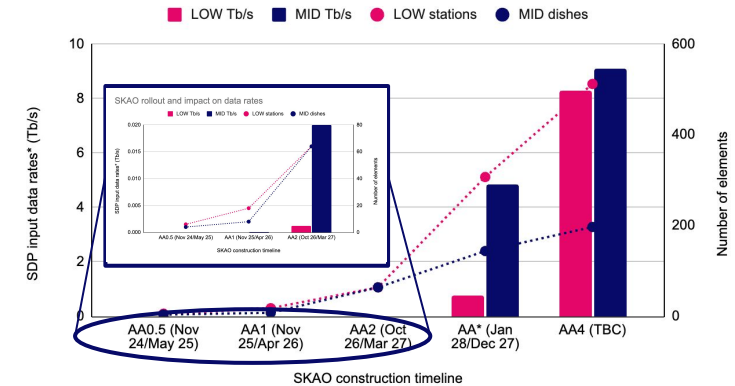
Simulation of the M83 galaxy, as might be observed by SKA-Mid for AA4. For demonstration purposes only
Credit: Sarvesh Sridhar

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Build, deploy, test, verify a working system at each Array Assembly

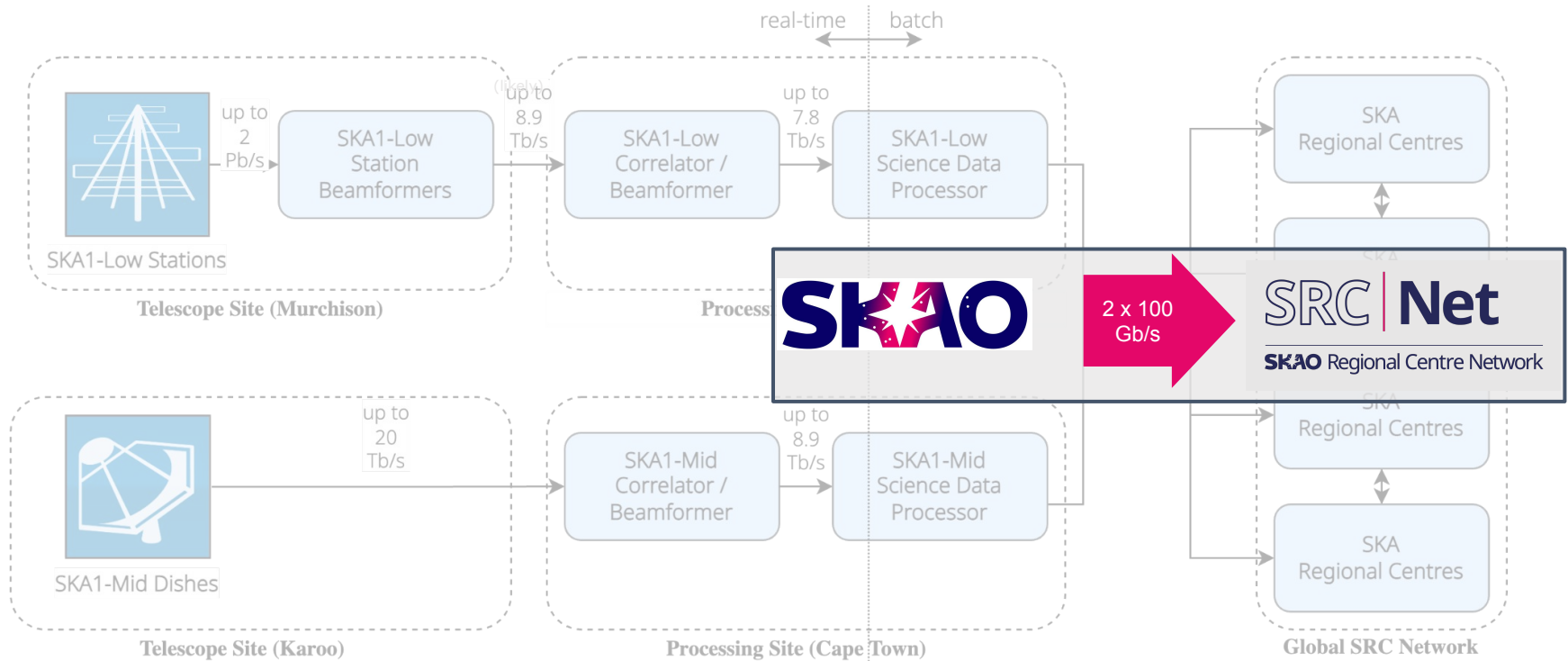
SKAO rollout and impact on data rates



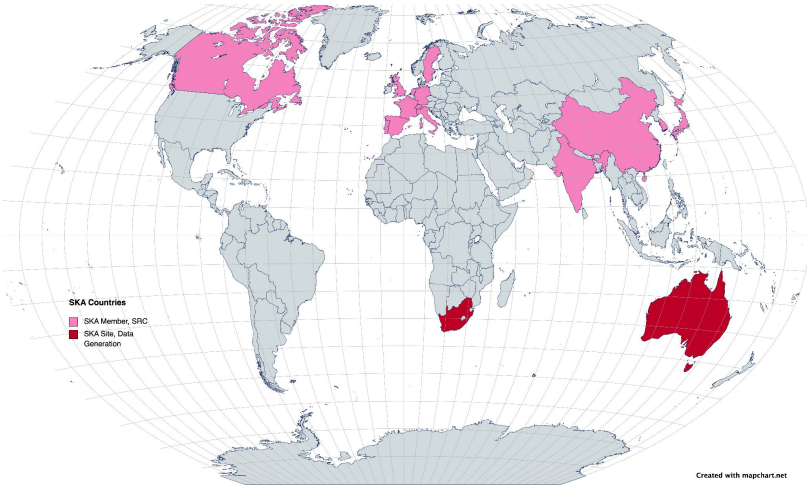
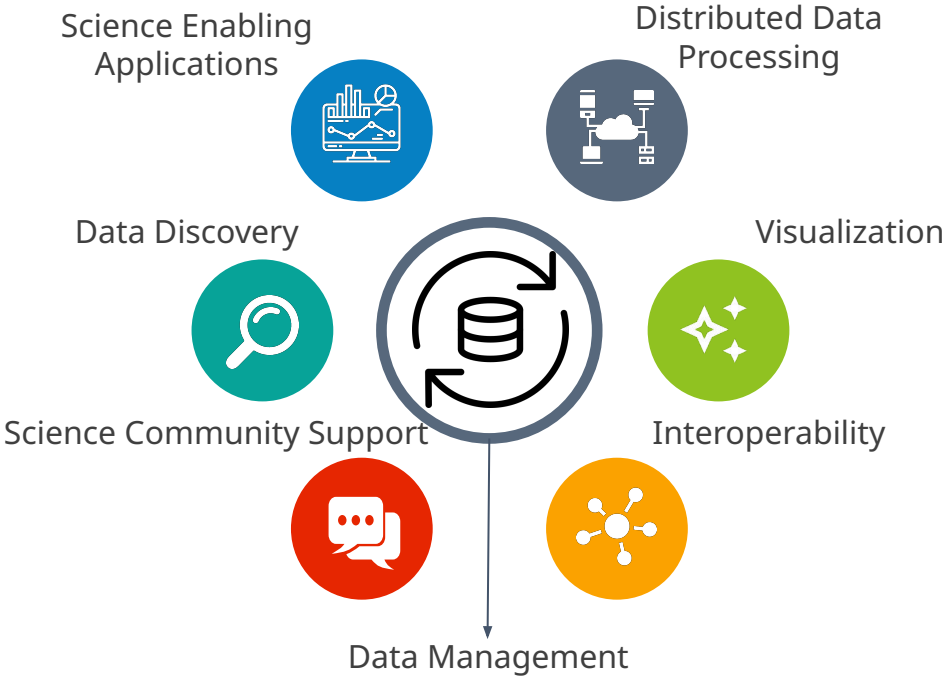
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SKA Data Flow



Big Data, Bigger Science



SKA Regional Centre Core Capabilities



SRCNet ...how?

Development efforts via the SRCNet Agile Release Train

- Growing team of teams contributing to the development efforts, led by the Program Team following Agile (SAFe) processes
 - Backlog refinement and prioritisation meetings prior to 3 monthly planning events to plan work into 2 week iterations + daily* scrums, weekly sync points and demos
- Swiss efforts as part of the Coral team are always very well received
 - Object storage provided by CSCS is also proving to be useful this PI



Ground control to Major Tom

...what does this mean in reality, what needs to be done, now?



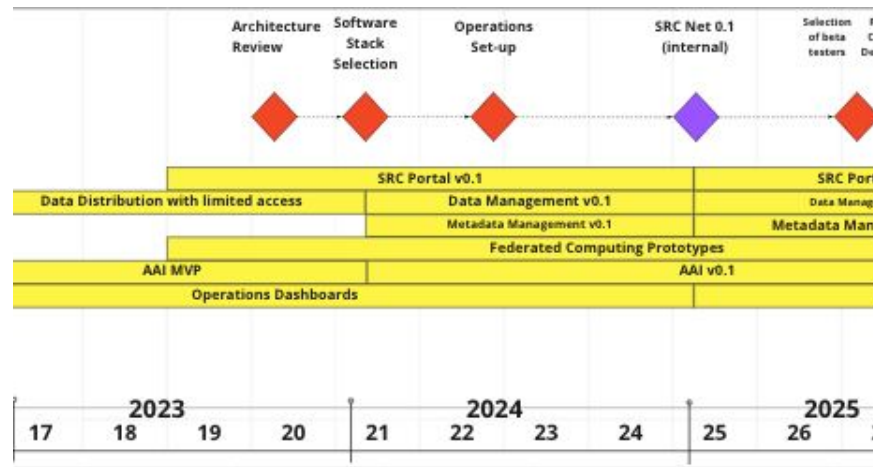
Roadmap development

Starting with SRCNet v0.1 (based on the review feedback)

While the roadmap is a work in progress, it should be a 2 way conversation*

Who are the stakeholders ?

- Science users



From Rosie Bolton's PI21 Planning Vision talk



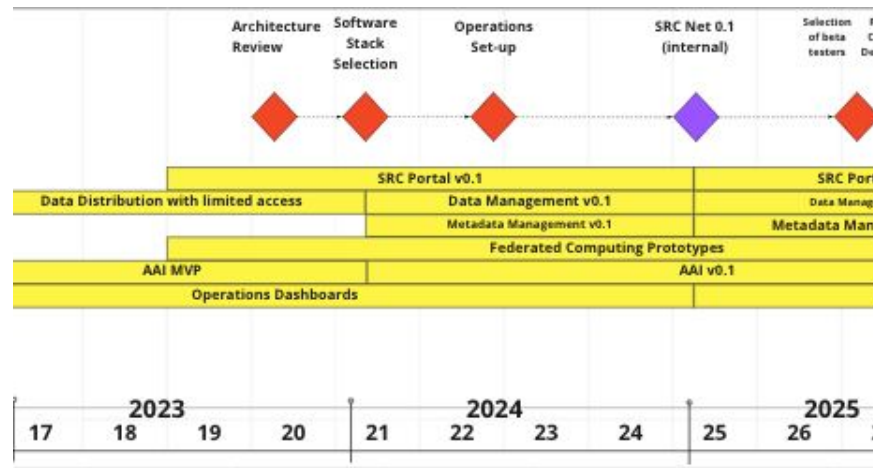
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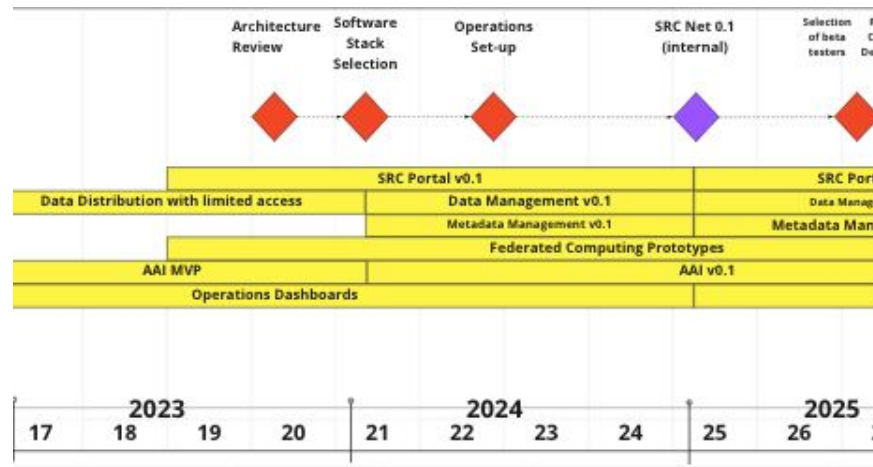
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- Science users
- Sites and Infrastructure Providers
- The Observatory!



From Rosie Bolton's PI21 Planning Vision talk



The SRC Roadmap as w.r.t. review outcomes

Milestone	Description	SRCNet Functionality	Scope (users)
SRCNet v0.1 First quarter of 2025 =Dec 2024 in PI planning terms, or end PI24	Opportunity to engage SRCNet with AA0.5 data transfer and access. (but otherwise, this is an SRCNet internal version)	<ul style="list-style-type: none">● Test data (and some precursor data) disseminated into a prototype SRCNet● Data can be discovered through queries to the SRCNet● Data dissemination to SRCNet nodes● Data can be accessed through a prototype data lake● Data replication. Data can be moved to a local SRC area where non-connected local interactive analysis portals (notebooks) could allow basic analysis● Unified Authentication System for all the SRCs● Visualisation of imaging data	SRC ART members Members of SKA Commissioning team

Slide credit: Rosie Bolton, PI21 Planning Vision talk



Where do we start? ...APIs

SRCNet v0.1 Functionality

Shifting from group discussions to code to establish consensus, or identify where there are differing views that merit further technical discussion

<https://gitlab.com/ska-telescope/src/src-service-apis>

These are collectively owned by the SRCNet, not set in stone, and a way to drive discussions with concrete outcomes



Can't start with the pretty stuff, have to start at the bottom and get our hands dirty, with the fun stuff!



- Actions to create a stable and maintained operational SRCNet
 - Starting with minimum 4 nodes for v0.1
 - Nodes maintained
 - Separation from development and operational environments
 - Requires operational procedures, dedicated local support, coordination for maintenance operations, etc
 - It will help to show progress and provide continuous deployment

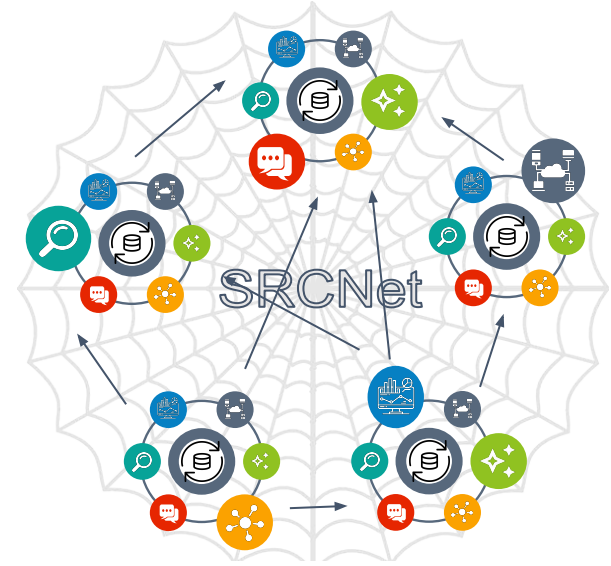
Slide credit: Jesus Salgado, PI21 Planning Vision talk



SRCNet v0.1 and the Swiss SRC

Swiss SRC as a node of SRCNet v0.1?

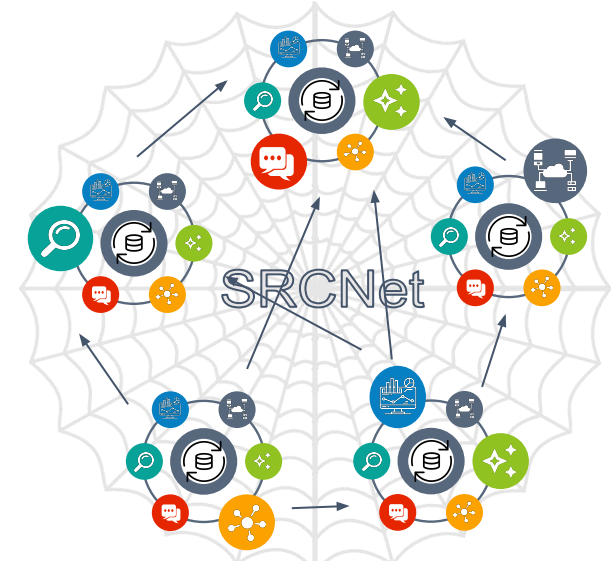
- Hardware resources
- Person power
 - Development
 - Operations
 - Process alignment
 - Policy alignment



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HPC concerns exist, prioritising relevant work to address them

More visibility of Construction ARTs in a way that is helpful and not a distraction

- AA0.5 data
- Communities of Practice (CoPs)



Looking forward

- SRCNet v0.1
 - Development (APIs)
 - Operations
- Development and Architecture roadmap development beyond 2024
- Areas for improvement include trust, communication and efficient processes (in the context of limited personpower)
 - Processes, requirements are in flux. Assuming positive intent goes a long way!

