EVLA Data Post-processing

Overview

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Goals

• Fulfill project requirements
  – post-processing requirements (Butler, Myers)
• Meet delivery schedule
  – management plan (McMullin, Greisen)
• Functionality, Robustness, Usability
  – integrated development & testing plan
• Efficient use of resources
  – maximize co-development with ALMA
AIPS

- extensively developed & well-tested
- will be used in commissioning
  - avoid commissioning both telescope & software!
- plan: continued support + targeted development
  - support current VLA users
  - develop new functionality (e.g. auto-flagging, RFI)
  - support as much of EVLA processing as is practical
aips++/casa

• primary support for full EVLA processing
• maximize co-development with ALMA
  – most core functions are in common
  – share development team & management
• merge EVLA and ALMA development plans
  – EVLA focus on “Delta” problems
• EVLA testing during development cycles
  – ALMA tests already use VLA data!
Usability & Interface

• Interface
  – current focus on CLI and scripting for functionality
  – necessary special purpose “GUI”s (e.g. viewer) only

• General GUI development
  – defer to new Framework development(s)
  – scheduled for 2007

• Usability is key for EVLA user acceptance
  – rely on scientist input (e.g. NAUG)
Problems

• Difficult EVLA problems
  – wide-band wide-field full polarization imaging
  – high dynamic range high-fidelity imaging
  – also: RFI, pipelines

• Data rates
  – 2008 spec 25 MB/s max (cf. VLA 0.1 MB/s)
  – WIDAR can produce much higher rates!
  – data volumes also (TB datasets)
Algorithms

• Algorithms group
  – led by Bhatnagar & Myers (formerly Cornwell)
  – includes AIPS & aips++/casa developers, students
  – NRAO-wide staff participation (e.g. NAWG)

• Progress
  – w-projection, pointing corrections (TC, SB, KG);
  – autoflagging, RFI (EG, BC); pol. beam (TC,SG,KG);
  – RFI (TC,RP,SB,KG); MS-clean (TC,SB,KG,EG)
Risks & Issues

- difficult problems (e.g. wide-band MFS)
- schedule (tight given current resources)
- data rates & size ➔ cluster computing?
- user interface ("green hole")
- aips++ support for VLA? or EVLA only in 2007?
- pipelines: afford development & ops support?
- new frameworks (ACS? general? developer?)
Appendix: Groups

• NAUG = NRAO Aips++ User Group
  – aips++/casa programmers and scientific staff
  – currently ~1 FTE of testers (AOC & CV)
  – pre-testing for ALMA and EVLA
  – use cases and development guidance

• NAWG = NRAO Algorithms Working Group
  – started Nov 2005, scientific staff NRAO wide
  – regular forum to discuss algorithm issues