

VLBA Software Group Meeting

Introduction to the Upgrade Project

Walter Bricken

National Radio Astronomy Observatory (Socorro, NM)

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VLBA Upgrade Components & Status

DiFX Software Correlator

- * In final testing

Mark5C Disk Recorder

- * Hardware (Conduant) complete
- * Firmware (Conduant) 70% complete, but not yet usable
- * Software (Haystack) 80% complete

ROACH Digital Backend (RDBE)

- * Hardware (NRAO/Berkeley/ZA) 95% complete
- * Firmware (Haystack/NRAO) 33% complete ???
- * Software (Haystack/NRAO) 33% complete

VLBA Upgrade Phases

Upgrade phase I

Goal: provide 2 Gbps record rates to astronomers ASAP

- * Single RDBE and single Mark5C
- * Use *legacy* Mark5B data format
- * Support for polyphase filter bank RDBE personality

Upgrade phase II

Goal: provide enhanced flexibility and > 2 Gbps record rates

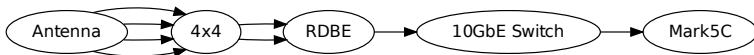
- * Two RDBEs
- * Advanced Mark5C or multiple Mark5Cs
- * Support for digital down converter RDBE personality
- * Support for VDIF data format

New VLBA Data Path

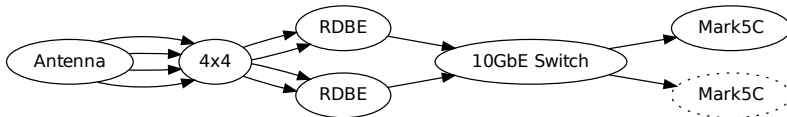
Existing VLBA



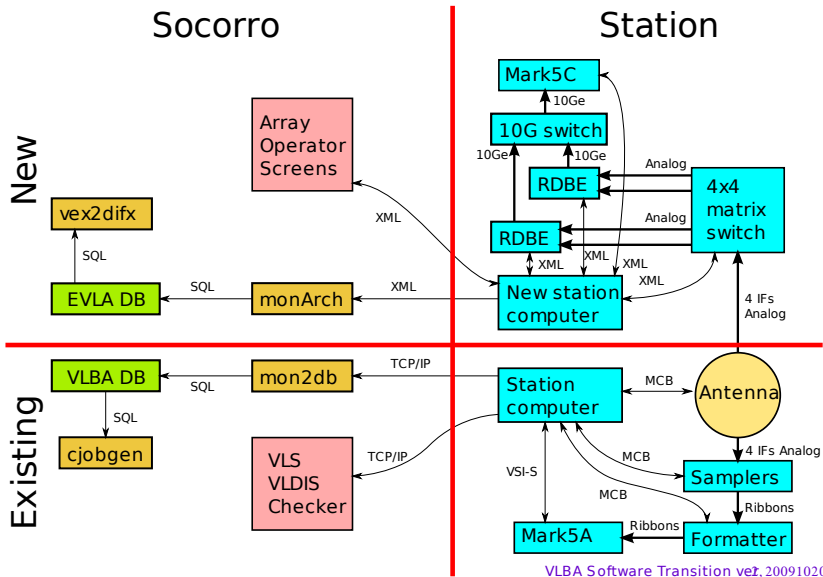
First Upgrade Stage



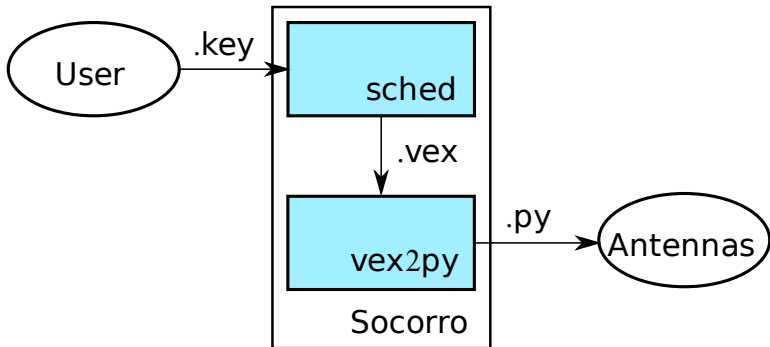
Final Upgrade



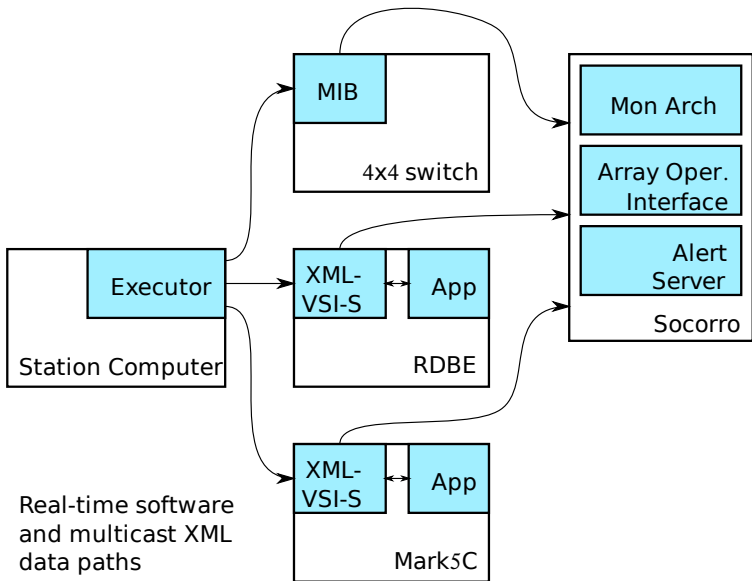
Parallel Software Systems



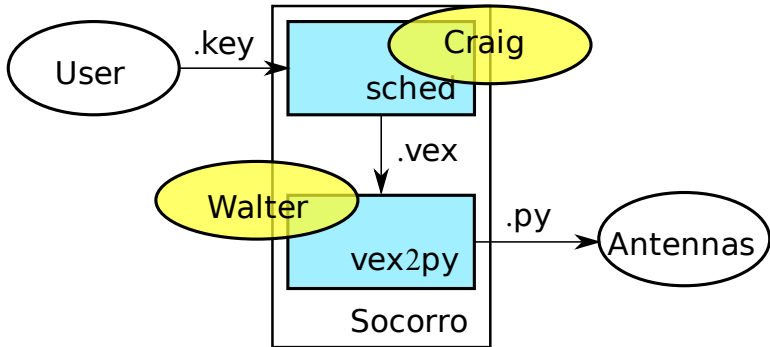
Pre-obs Software Required by June 2010



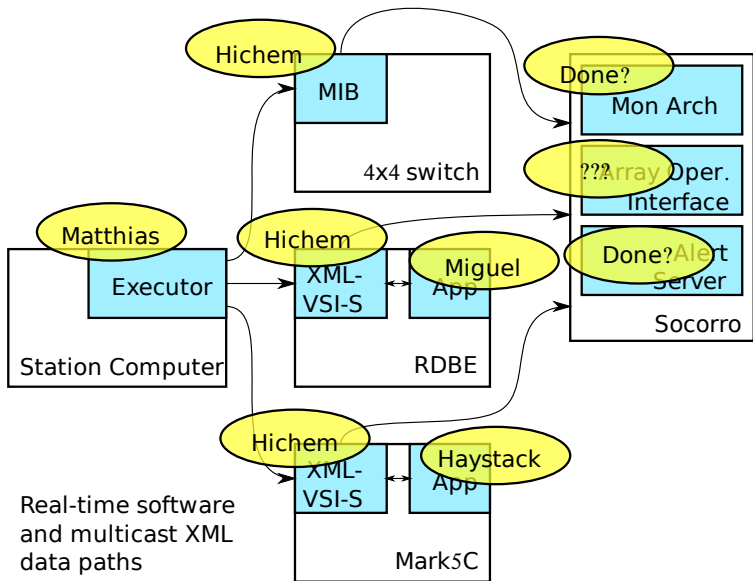
Real-time Software Required by June 2010



Pre-obs Software Assignments



Real-time Software Assignments



Beyond the sensitivity upgrade

Lots more to do:

- * Ka-band (~ 32 GHz) receiver support (starting Q4 2009)
- * C-band (4-8 GHz) receiver (hopefully starting Q1 2010)
- * Complete migration off old station computers
- * Real-time links from some(all?) VLBA antennas
- * Integration with VLA (i.e., PT-link)