AVTEC SYSTEMS

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Demand Access System / ITT

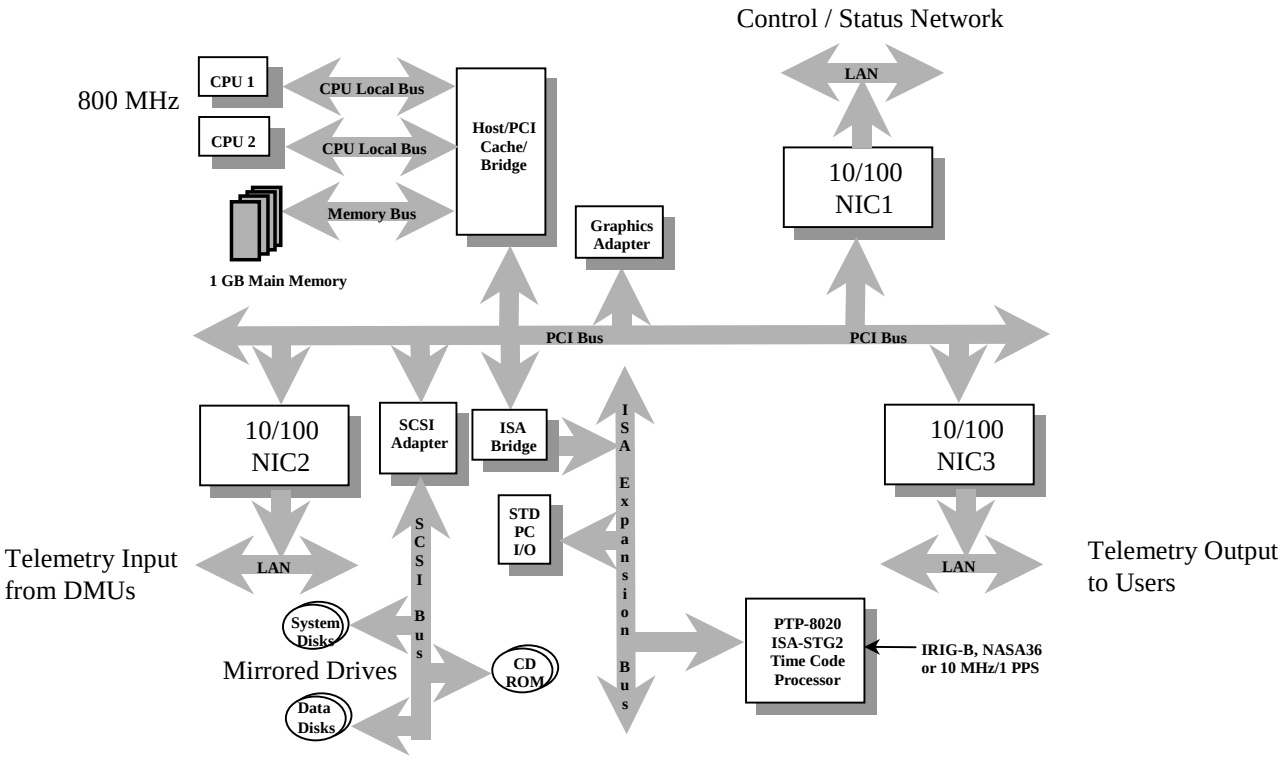
AGENDA

- DAS PTP Requirements
- DAS PTP Architecture
- Functional Description
- PTP Modules
- Sample Data Flows
- System Test
- Status
- Issues
- Question & Answer Session
- Demo

Requirements

- Receive CCSDS and non-CCSDS serial data over TCP/IP sockets on Network I/F 2 (aggregate rate of 7.5 Mbps, 3.75 per PTP)
- Transmit encapsulated and/or processed data over TCP/IP sockets on Network I/F 3
- Support up to 50 concurrent telemetry streams (25 per PTP)
- Remote control and status via PTP Remote I/F Library through Network I/F 3
- Processing - Frame Synchronization, CCSDS Virtual Channel Processing/Sort, CRC
- Archive and Rate Buffer using Spooler Module
- Rate Limit using CPU Timer Module
- Reed-Solomon FEC not required

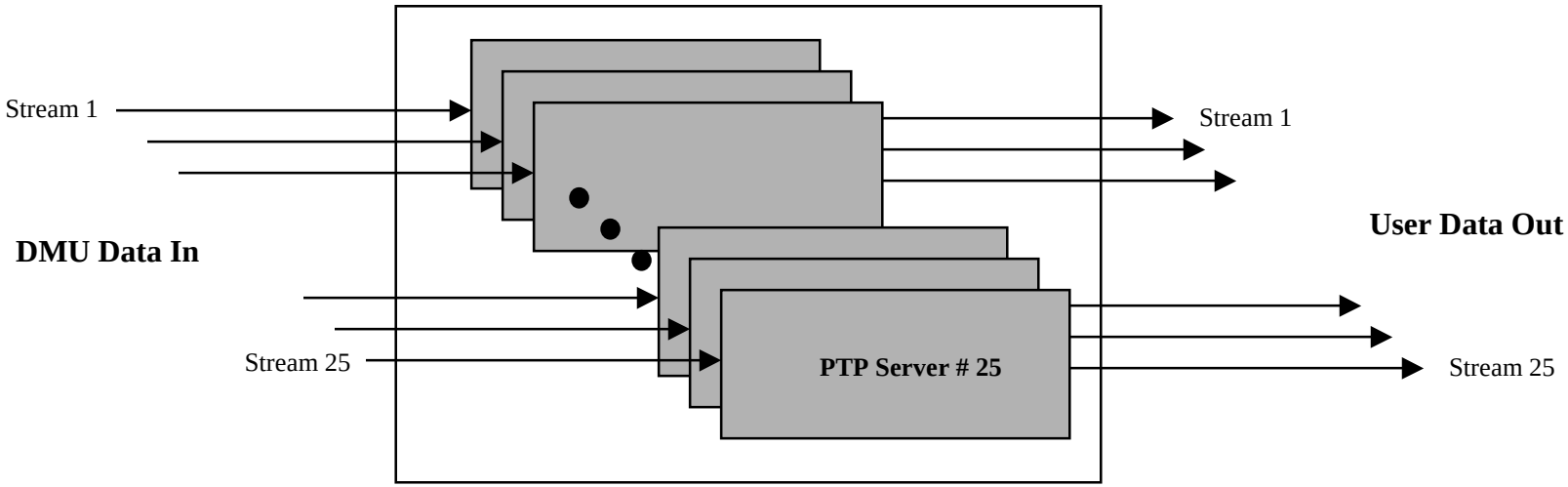
DAS PTP Architecture



Functional Description

- 50 concurrent streams over 2 PTPs
- 25 PTP Servers per PTP (one data stream per server)
- Each stream is independent with independent start, stop, flush and reconfiguration capability

PTP Functional Diagram

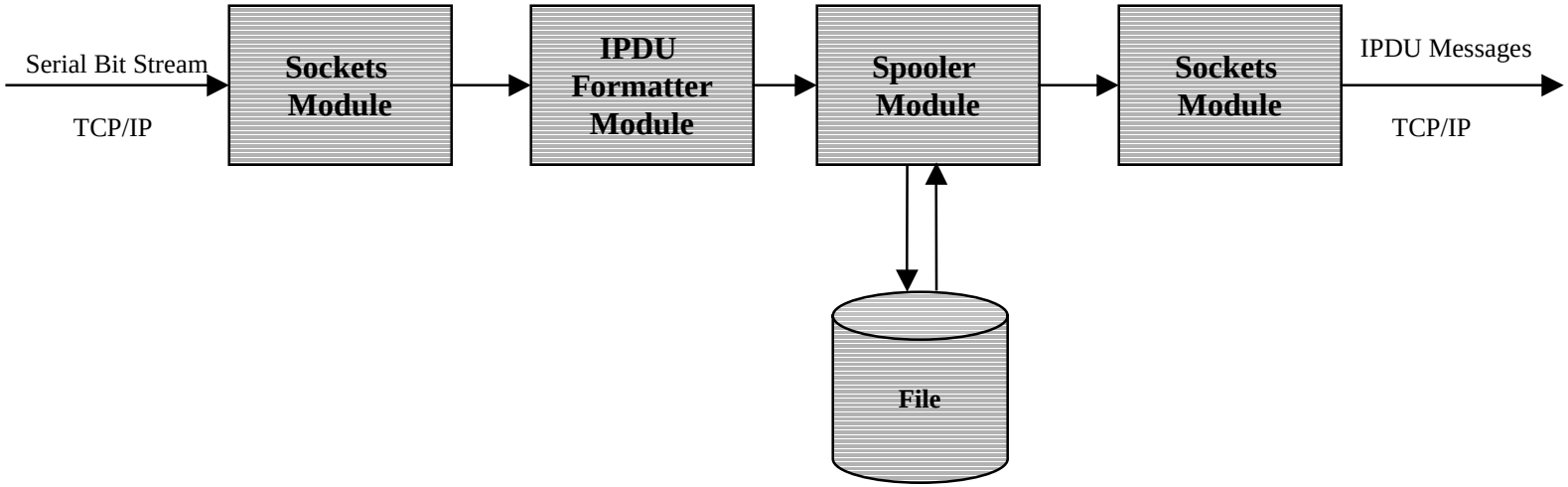


PTP Modules Used By DAS

- Network Sockets Module: receive DMU data, transmit user data
- Super Sync Module: Optimized 4 state Frame Synchronizer w/ APC (no windowing/bit slip capability)
- VCP Module: Virtual Channel Processing/Sort, CRC calculation
- Spooler Module: Rate Buffering and Data Archive
- Various Encapsulation/Formatter Modules: IPDU, AXAF SFDU, ACE SFDU, LEO-T SFDU, NASCOM, DSN SFDU
- CPU Timer Module: Rate Limit (allocate user bandwidth)

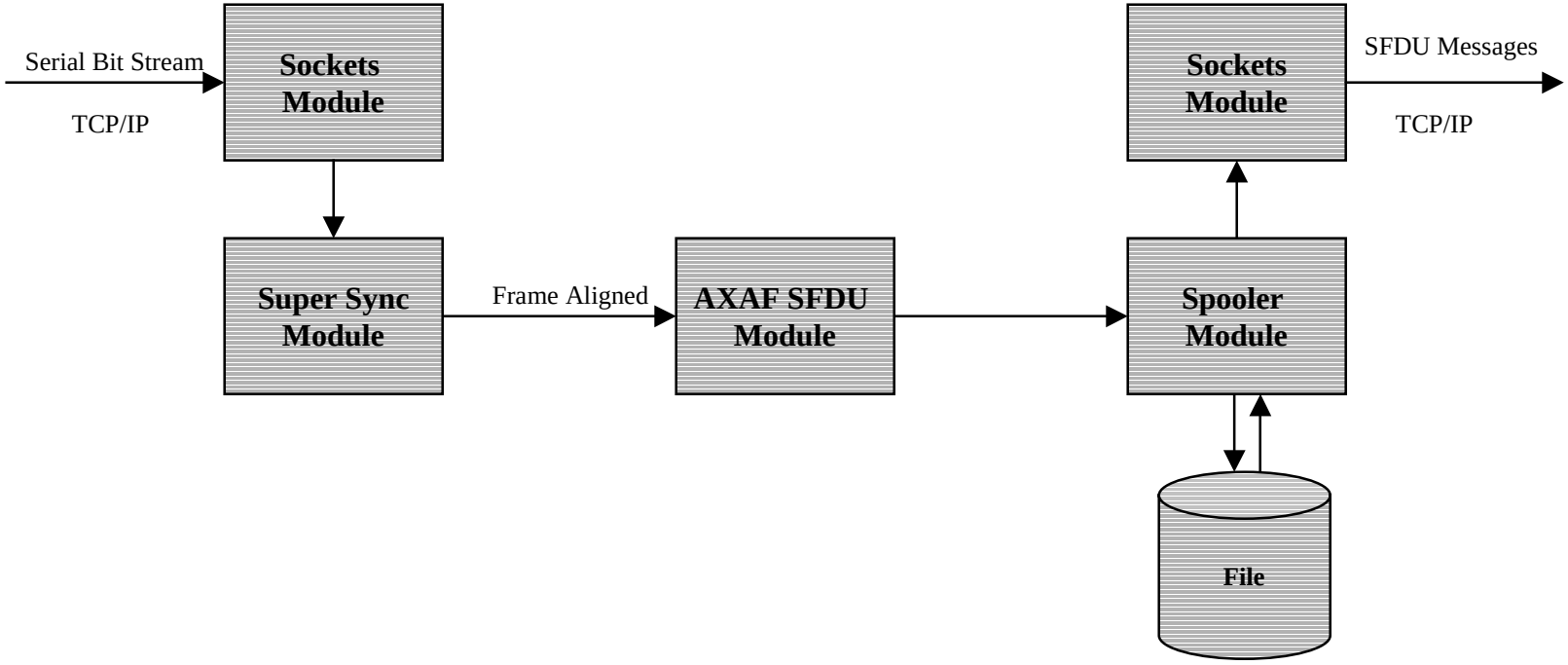
Sample Data Flows

- Raw Serial Data, IPDU, Rate Buffer



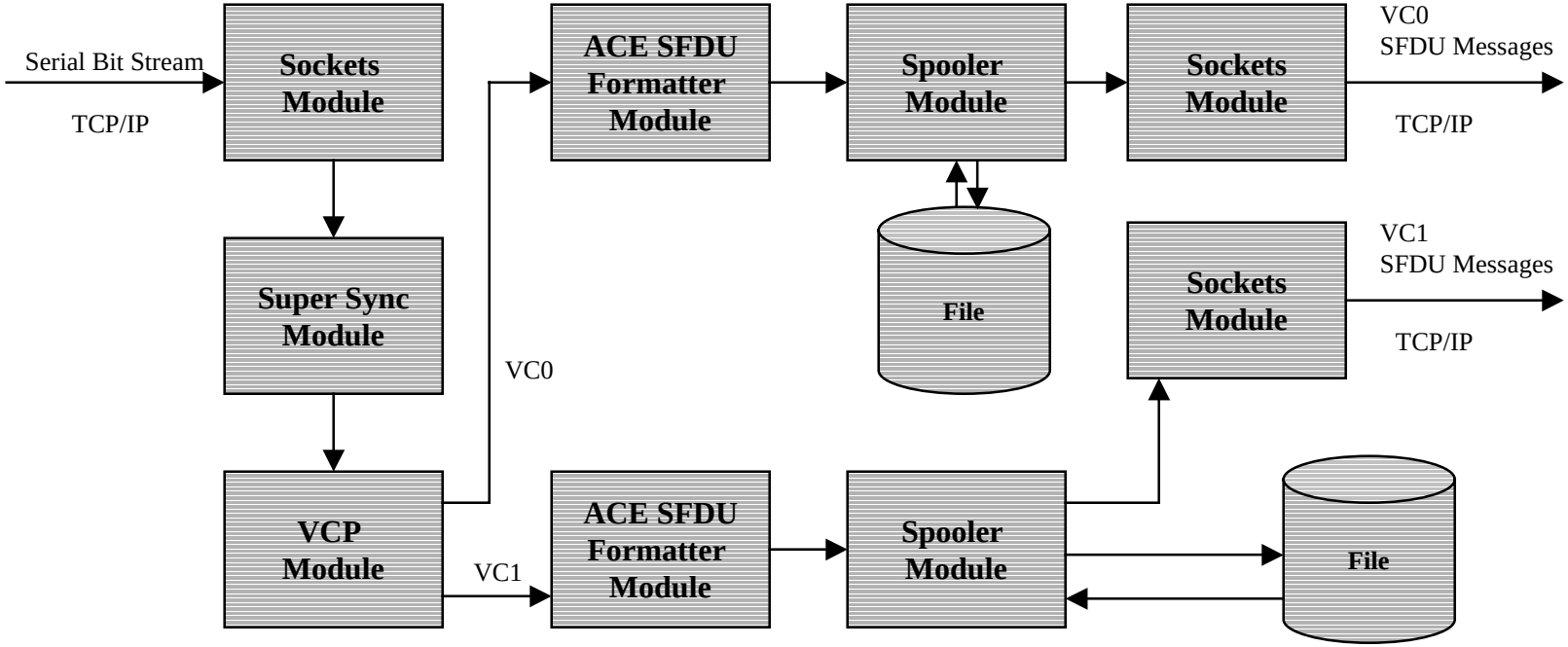
Sample Data Flows

- CCSDS CVCDU/VCDU (R-S not computed), F/S, SFDU, Rate Buffer



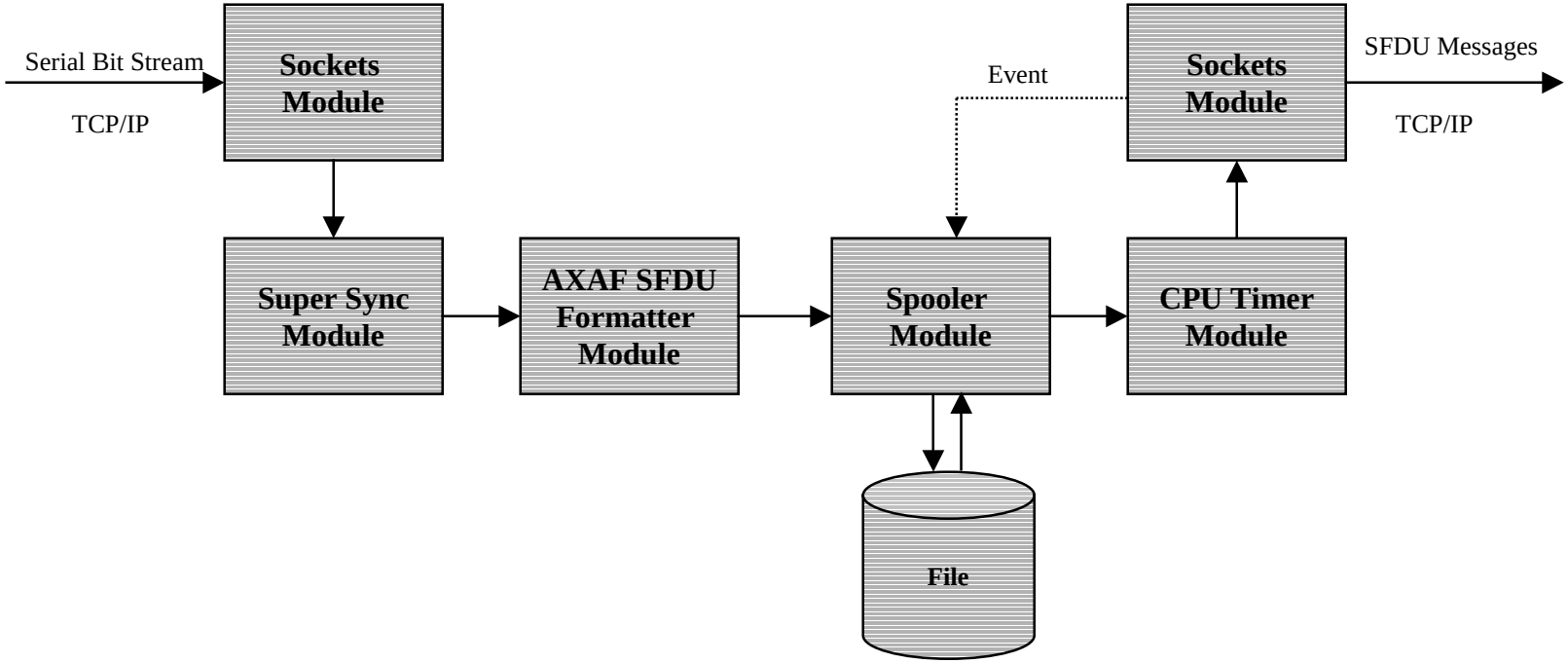
Sample Data Flows

- CCSDS , F/S, VCP, SFDU, Rate Buffer



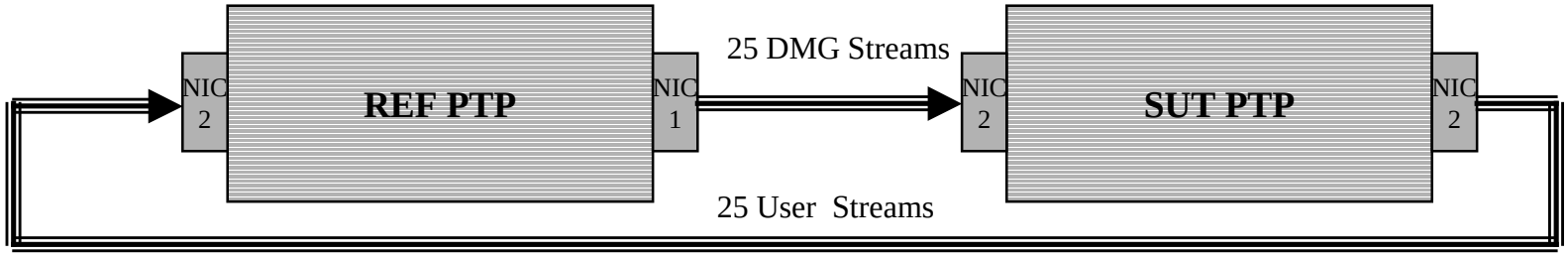
Sample Data Flows

- CCSDS CVCDU/VCDU (R-S not computed) , F/S, SFDU, Rate Limit



System Test/ Performance Verification

- Modules incrementally tested
- Super Sync Module beta version benchmarked to 40 Mbps in continuous search mode
- System Under Test runs 25 servers with representative desktops
- Reference Unit runs 25 servers with 25 File Playback and 25 File Record Modules.
- File compare to verify processing and data integrity



Status

- Configurable server memory allocation - beta, in test
- Super Sync Module - beta, in test
- Archive/Spooler performance in test
- ATP development to start 2/20/01
- System testing, performance verification, ATP performance 3/01/01 - 3/23/01
- System Ship 3/30/01

Issues

- DAS PTPs will run 25 servers each, not 3
- Current design uses NT Server to mirror system and data drives - Archive/Spooler performance undergoing tests to determine if H/W RAID required
- SFDU may have invalid fields (receiver, bit sync, timetags) and requires some fields to be set by user