

Digisonde Platform Organization and Data Flow



Ivan Galkin

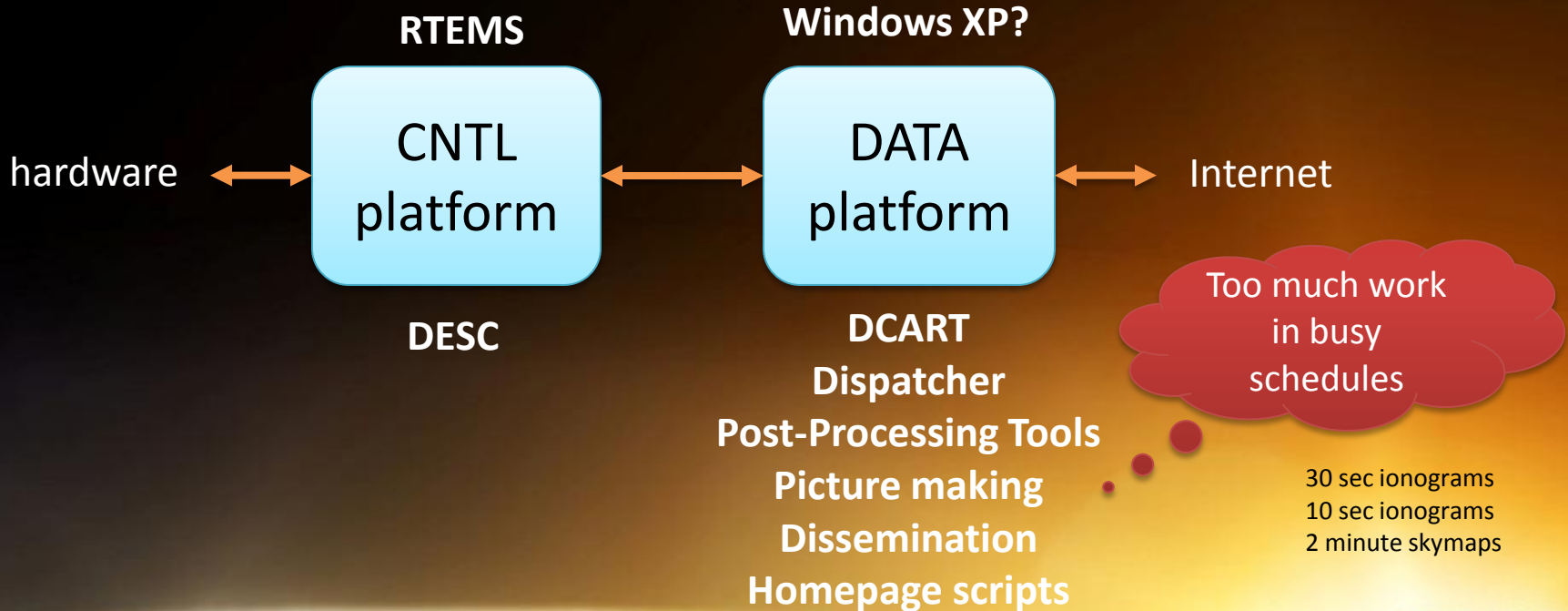
University of Massachusetts Lowell
Center for Atmospheric Research

IGF 2014

XIV INTERNATIONAL GIRO FORUM • 20-23 MAY

Digisonde Organization

Dual Platform

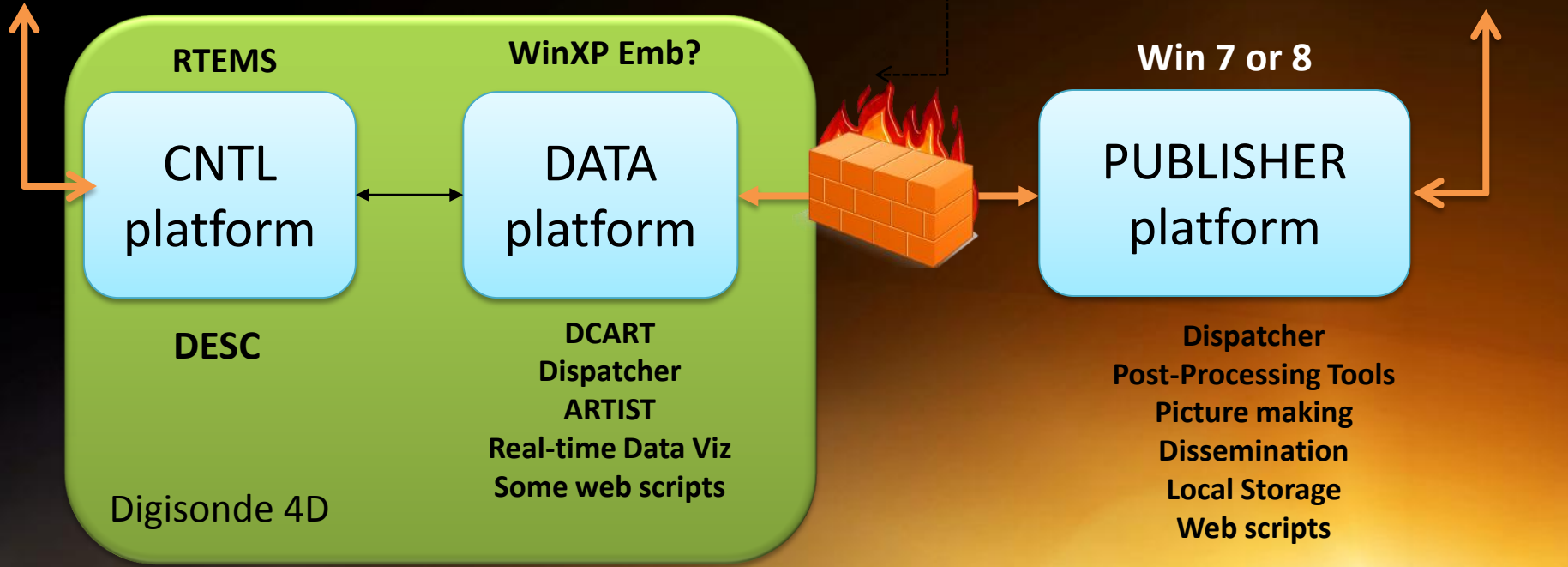


Digisonde Organization

hardware

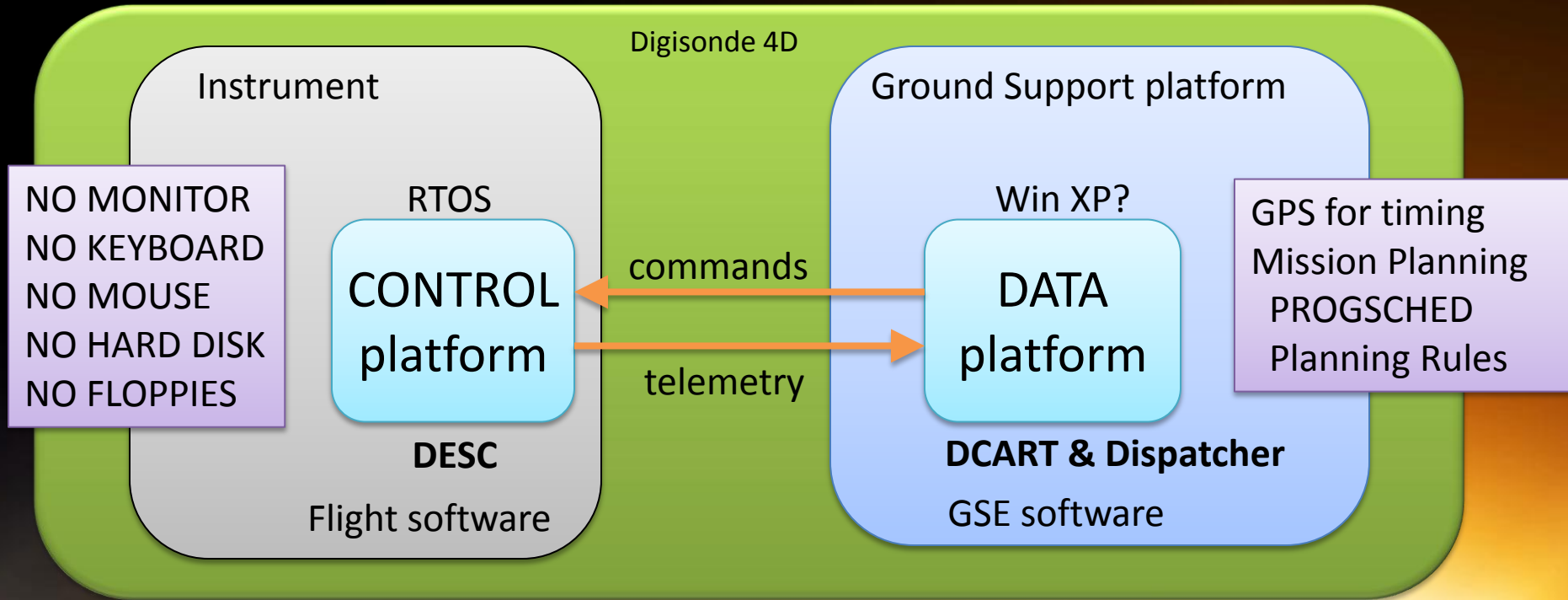
Triple Platform

WWW



Triple platform configuration tailored for high-cadence schedules
Also good for public access to local digisonde status and data

Internal Data Flow in Digisonde 4D



Internal traffic: C&T

- **Command packets** ←

- 0x31 Request Configuration
- 0x32 Flush SST Queue
- 0x33 **Auto-drift selection**
- 0x70 Periodic Message
- 0x71 Upload Program
- 0x72 Start Program
- 0x73 Stop
- 0x74 Upload Schedule
- 0x75 Start Schedule
- 0x76 Upload SST
- 0x77 Upload RFIL
- 0x78 Clear RFIL
- 0x79 Reboot
- 0x81 Standby State
- 0x82 Diagnostic State
- 0x84 Auto-scheduled State
- 0x85 Global Parameters
- 0x86 Half-octave switch frequencies

- **Telemetry packets** →

- *Science*
 - 0x81 Science Data
- *Housekeeping*
 - 0x01 “I am Alive”
 - 0x02 “Event Message”
 - 0x03 “Error Message”
 - 0x04 “Countdown”
 - 0x05 “BIT”
 - 0x06 “Tracker Cal”
 - 0x07 “HW configuration”

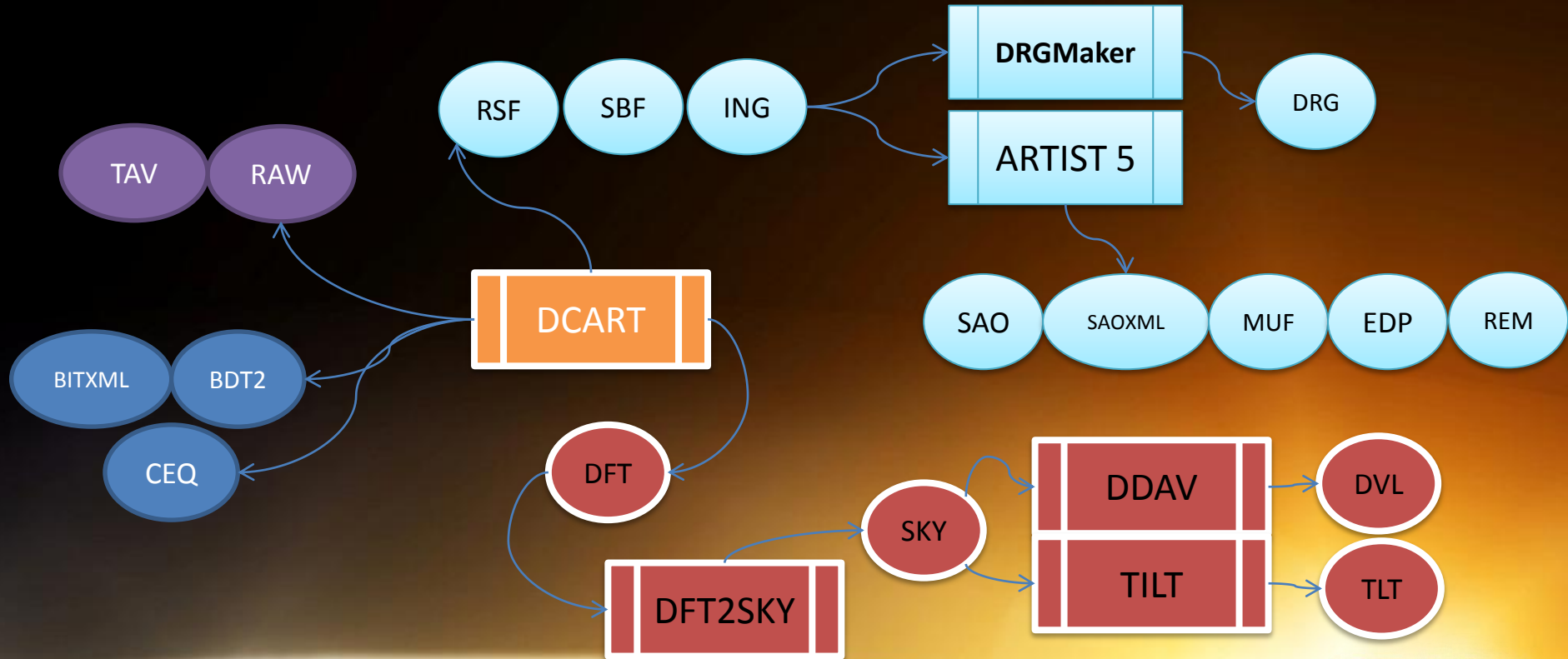
External Data in Digisondes

- | | | | |
|----------|--|----------|-------------------------------------|
| • BEM | Beam-scanning ionogram (DPS-4) | • RAW | Raw time-domain data by DCART |
| • BIT | BIT Built-In Test (DPS-1,4) | • RSF | RSF routine scientific format (DPS) |
| • BITXML | BIT Built-In Test (DPS-4D) | • SAO | ARTIST results in SAO text format |
| • BTD2 | BIT-2, daily file (Built-In test, DPS-4D) | • SAOXML | ARTIST results in SAOXML format |
| • CEQ | Cross-Channel Equalizing (DPS-4D) | • SBF | SBF single byte format (DPS) |
| • DFT | Drift data | • SKY | skymap data, 4096 byte blocked |
| • DRG | Directogram | • TAV | Time-average data (DPS-4D) |
| • DVL | Real-time drift velocities | • TIM | Time check signal (DPS-1,4) |
| • EDP | GAIM Electron Density Profile | • TLT | ionospheric tilt text file |
| • ERR | BIT Build In Test, error condition (DPS-1,4) | • VEL | Velocity data |
| • GRM | One day files with ionograms | | |
| • ING | Ionogram (DPS-4D) | | |
| • MMM | MMM ionogram (Digisonde 256, DPS-1,4) | | |
| • MUF | Maximum Usable Frequency | | |
| • OUT | Diagnostic/status file (DPS-1,4) | | |
| • PGH | Precision group height ionogram (DPS-4) | | |

DATA
platform

PUBLISHER
platform

External Data Flow: DPS-4D



Dalu

감사합니다

Gracias

Danke

Ευχαριστίες

THANK YOU

Obrigado

Köszönöm

Спасибо

Dank

Tack

Grazie

谢谢

Merci

ありがとう

IGF 2014

XIV INTERNATIONAL GIRO FORUM • 20-23 MAY