

Building Groundsystems Rapidly with Low Risk

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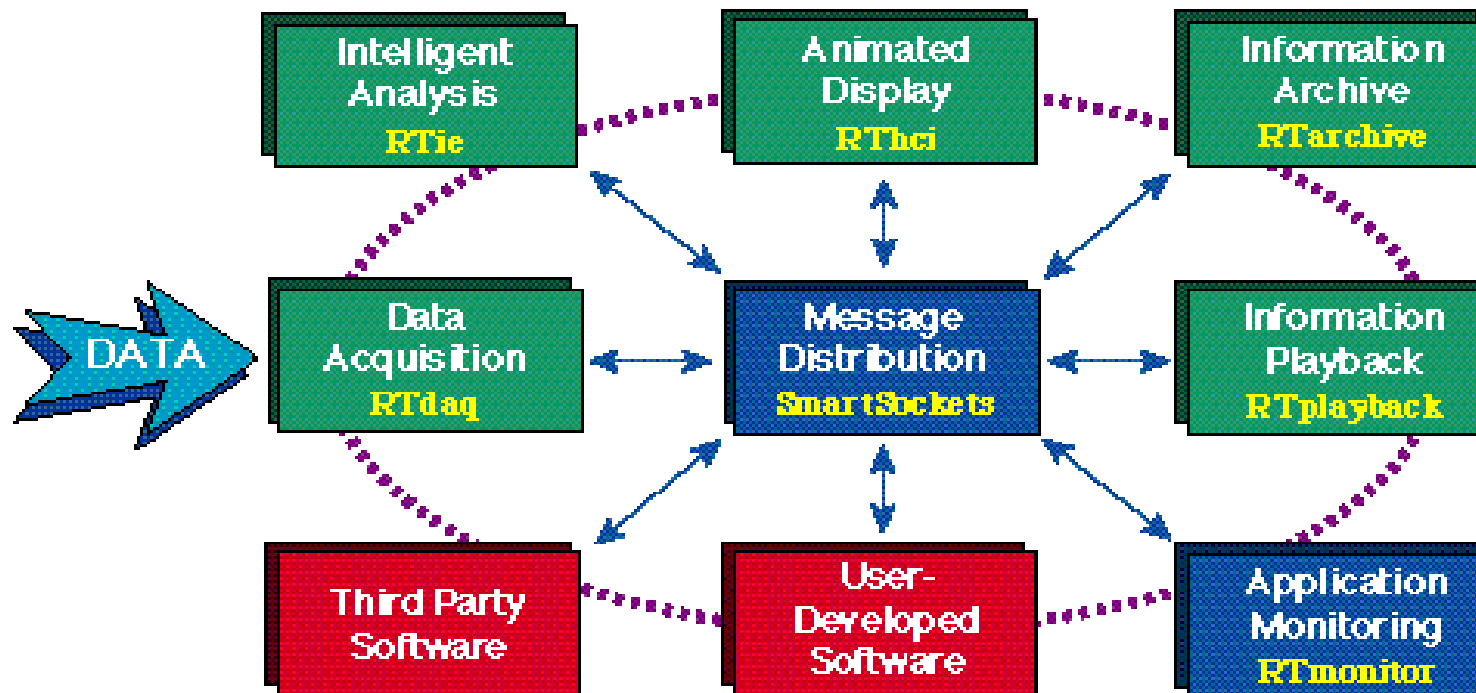
Agenda

- *Ground System Developer Needs*
- *RTworks Generic Architecture*
- *Extreme Ultra-violet Explorer Architecture*
- *CRSS Architecture*
- *Common Architecture Elements*
- *Summary*

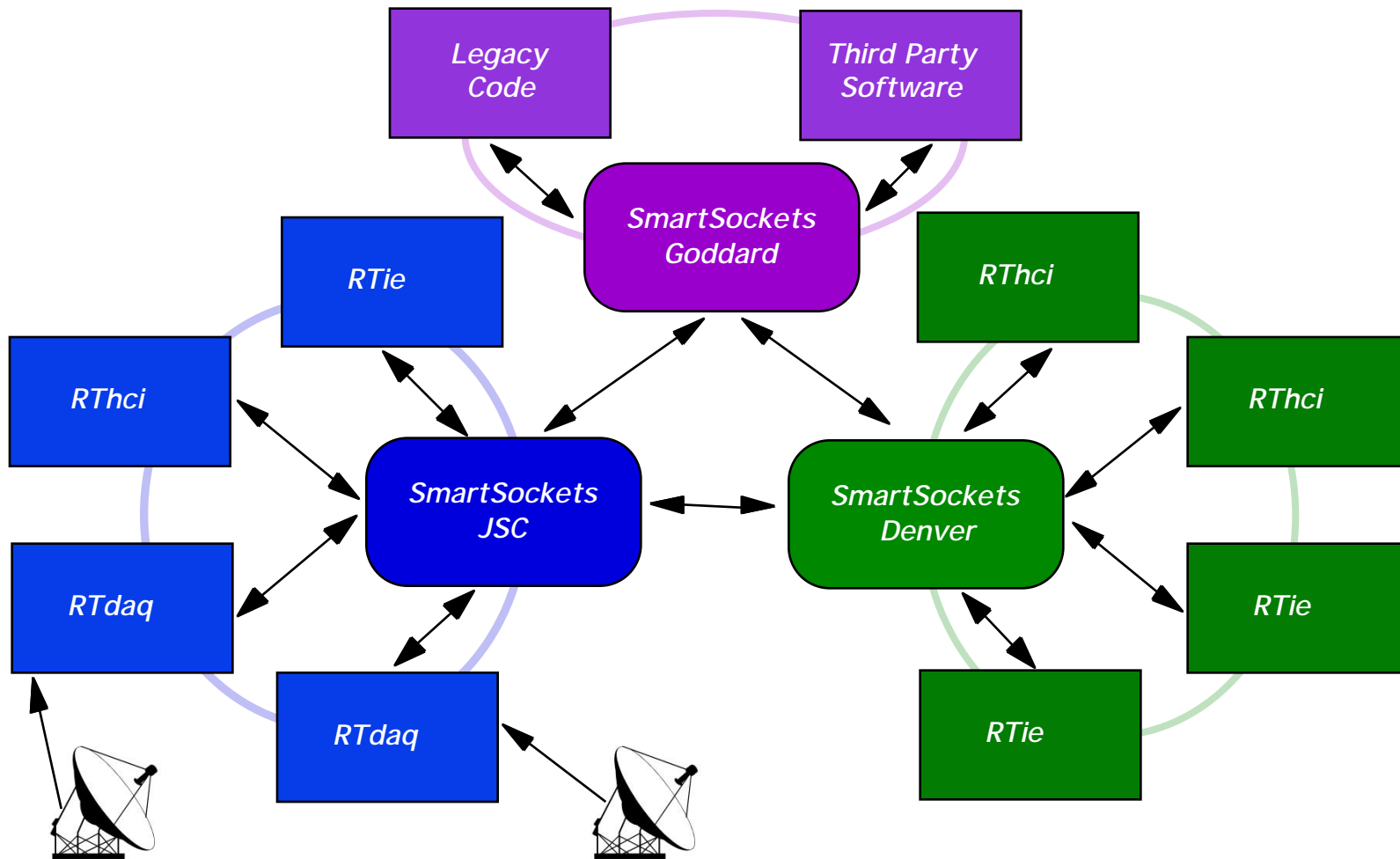
Developers' Needs

- *Openness*
- *"Toolkit"*
- *Scalability*
- *Inferencing / Expert System*
- *Distributing Processes*
- *Fault Tolerance*

RTworks Building Blocks



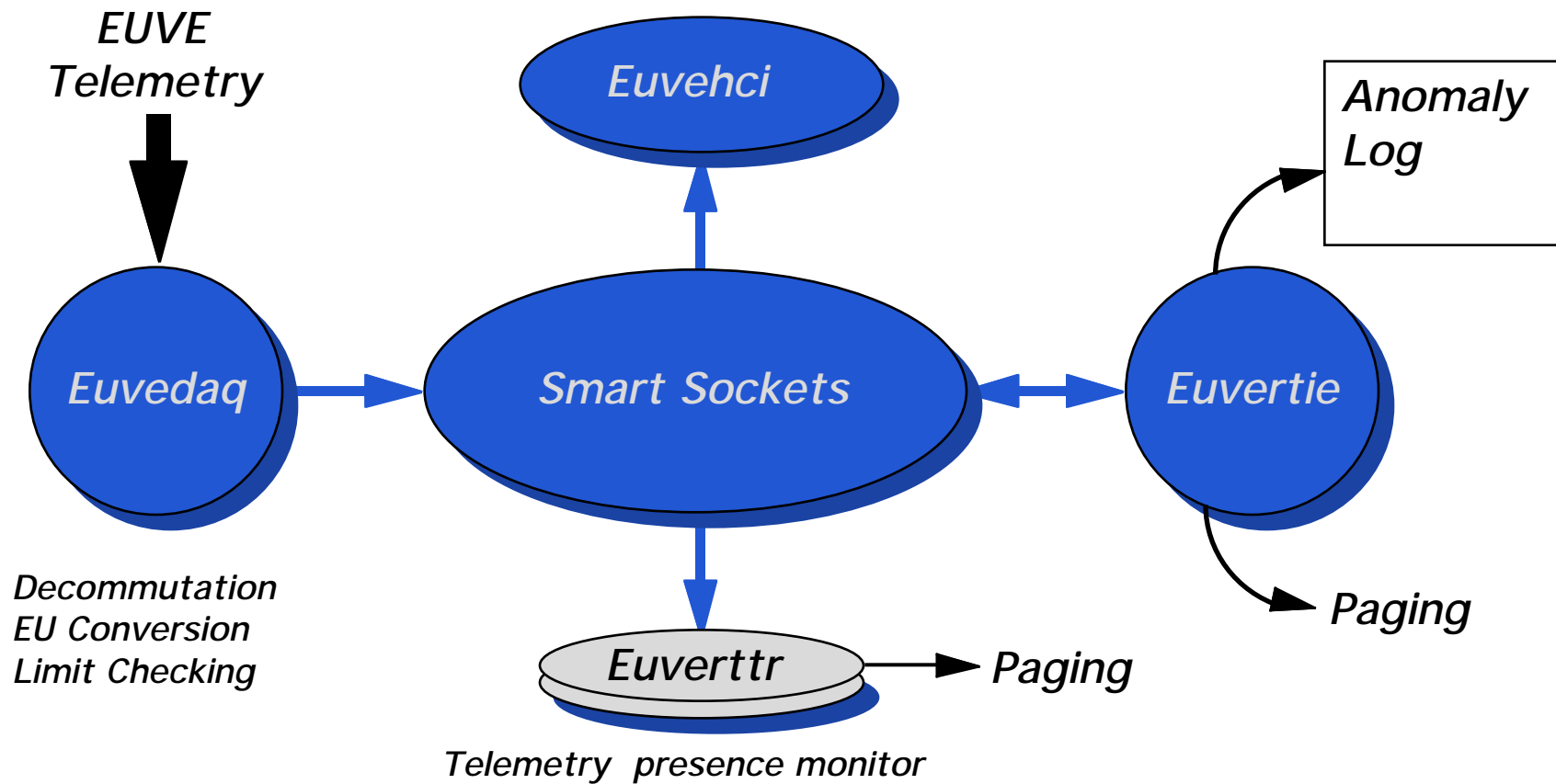
RTworks Modules Distributed



EUVE Background

- ***EUVE payload is operated out of UCB and the spacecraft out of Goddard Space Flight Center***
- ***To reduce cost of payload operations UCB needed to automate the process***
 - ***from 2 people working 24x7 to 1 shift***
 - ***from 1 shift to “zero” shift operations***
- ***Built a system the autonomously monitors and pages operators if needed***

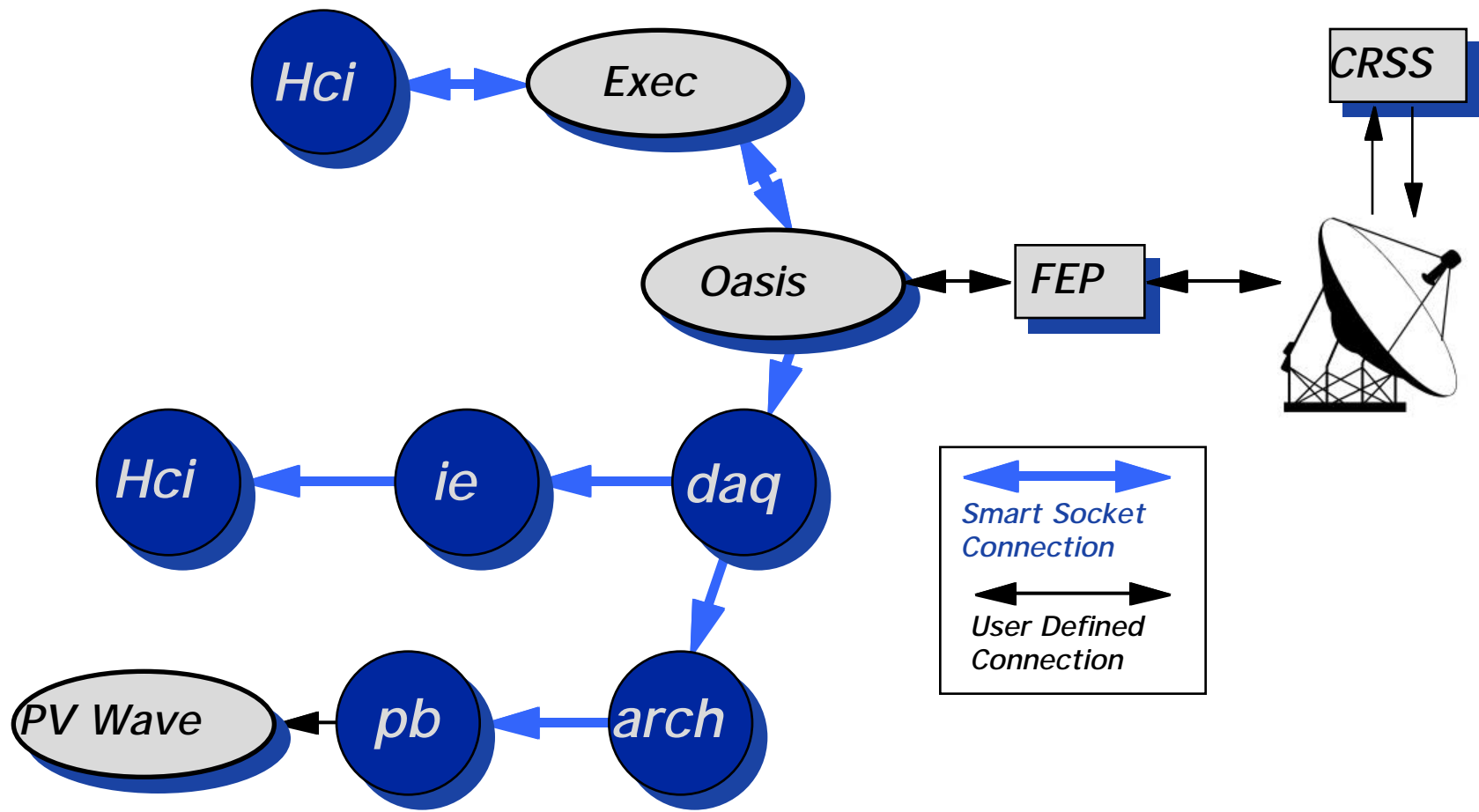
EUVE Architecture (Eworks)



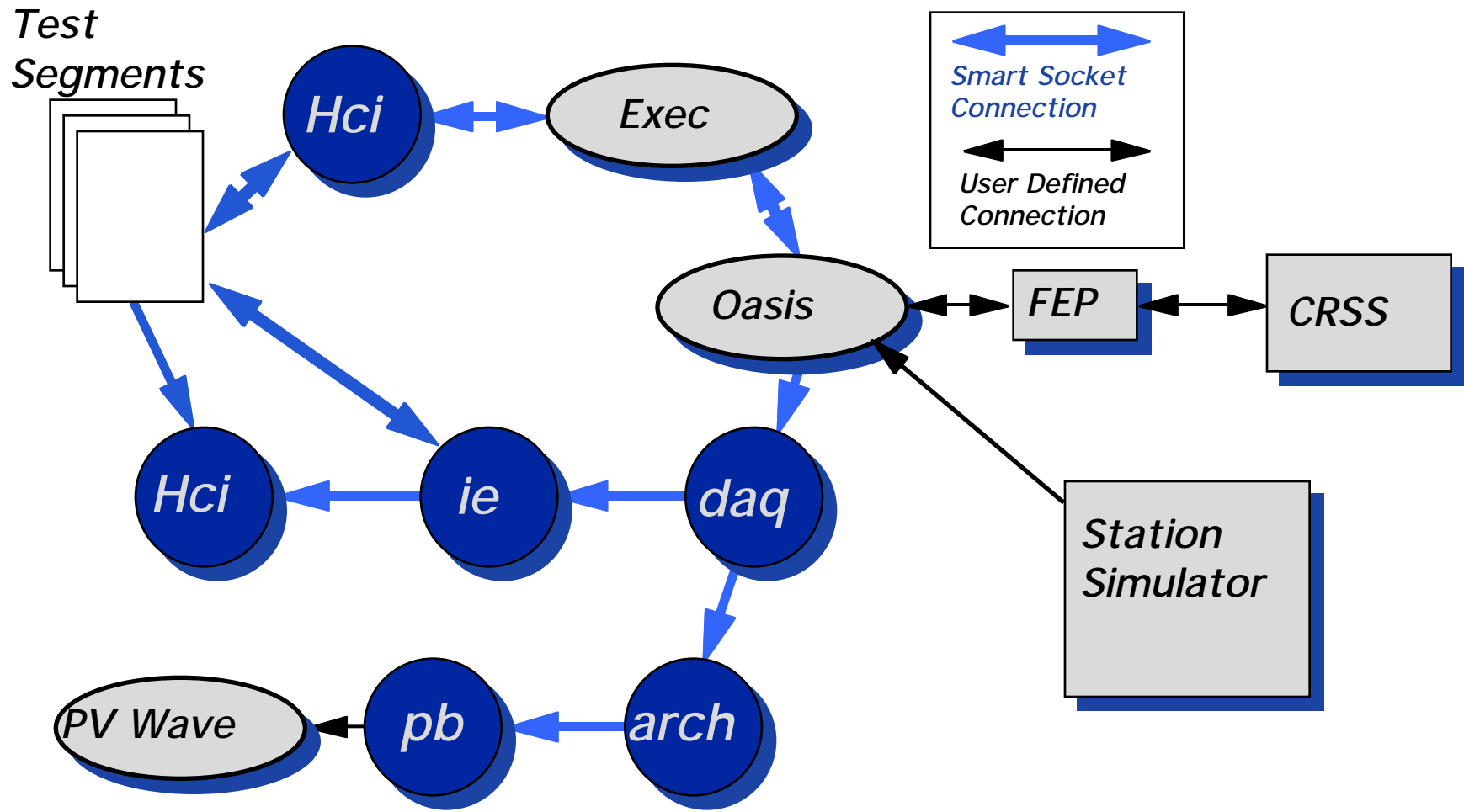
CRSS Background

- *Commercial Imaging Satellite*
- *Short Development Cycle*
- *Needed Both Operations and I&T Systems*
- *Cost Reduction through Standardized Ground system*

CRSS Architecture -Operations



CRSS Architecture - I & T



Common Architecture Elements

- *Strong Use of Middleware*
 - *Leverage Legacy Code*
 - *Shorten Integration Time*
 - *Add Third-Party Tools*
 - *Data Routing*
- *Performance*
- *Fault Tolerance*
- *Low Maintenance*

Summary

- *Rapid Development*
 - *Decreases risk to schedules*
- *Openness*
 - *Allows inclusion of 3rd party and legacy code*
- *Scalability*
 - *Supports architectures from a single payload system to constellation management*
- *Automation*
 - *Expertise can be built into ground systems*