

GEDAE and the CAPTOR Programme

Key Characteristics

- Multi-mode
- Air-to-air
- Air-to-surface
- Mapping

Tranche 2 Redevelopment

- Original processor is obsolete
 - Data processing code can be re-used
 - Difficult to re-use signal processing code (microcode)
 - Code and design heavily hardware dependent for optimisation
- Processor is being re-designed
 - COTS based G4 AltiVec processing cassettes
 - Flexible design

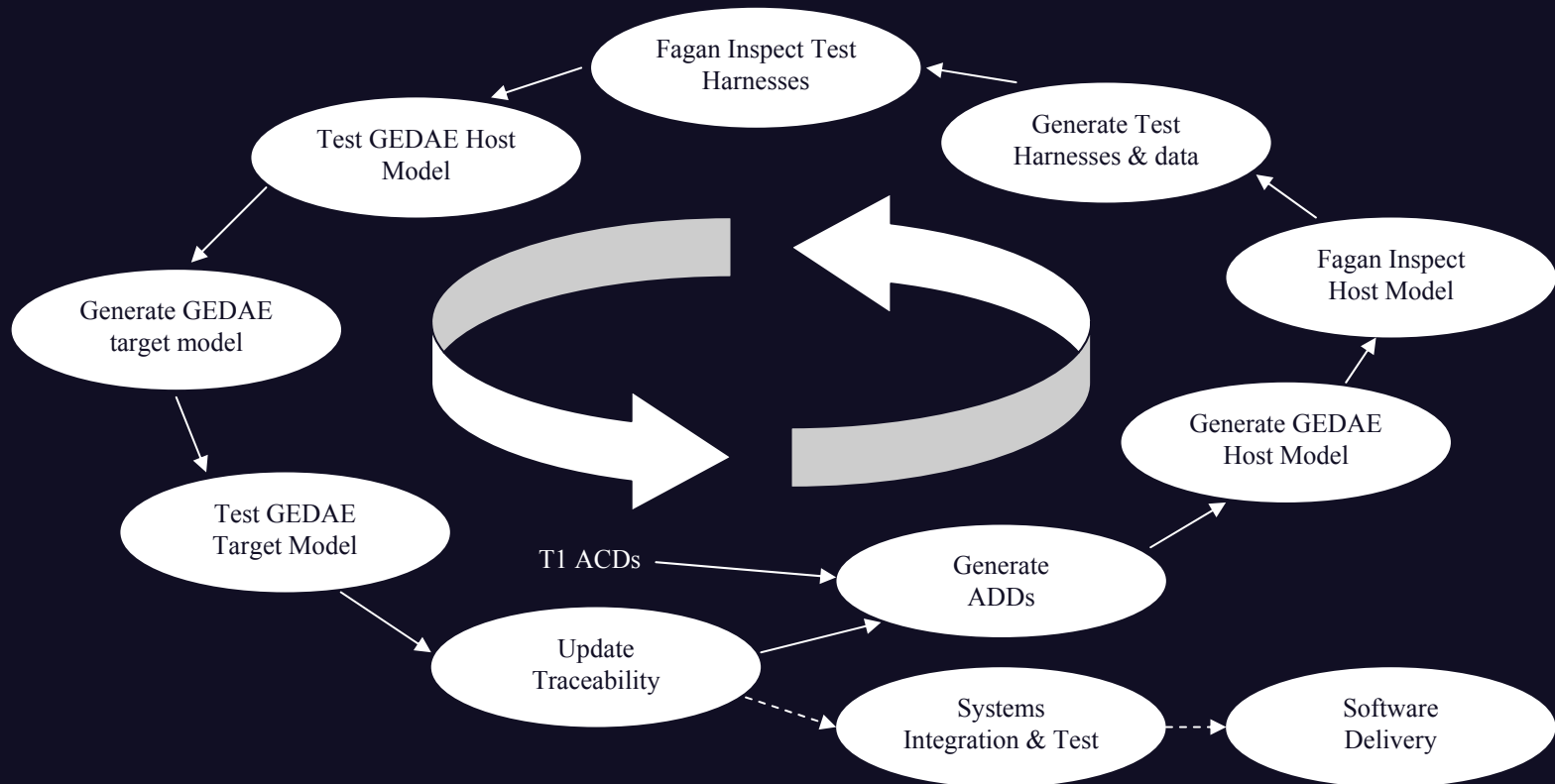
New Toolset for Signal Processing Software

- Re-design means opportunity to select new tools and methods
- GEDAE selected
 - overall mix of tool capabilities
 - executable model concept
 - repeatable testing on host and target
 - target mapping toolset
 - multiprocessor mapping
 - ease of use
 - developing signal processing functionality
 - porting to different hardware platforms
 - applicability to T2 SPS development
 - ability to incorporate legacy C code
 - in-built function libraries

New Ways of Working

- A new lifecycle has been created for developing SPS software
- An Iterative Incremental Lifecycle has been selected
- Functionality will be built up incrementally
 - Algorithms
 - Modes
- Allows early de-risking of high risk areas
 - Early mapping to target hardware

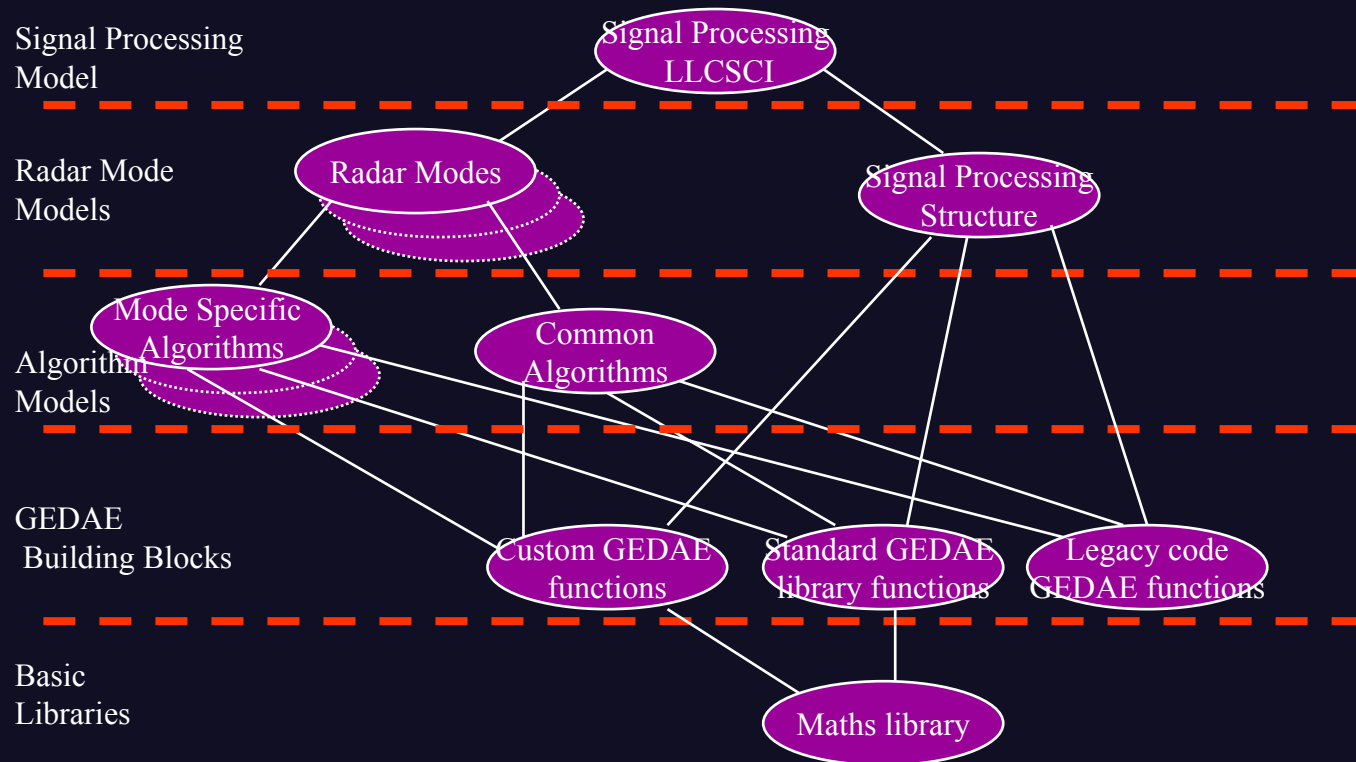
GEDAE Lifecycle



Inspection versus Unit Test

- BAE SYSTEMS are committed to the use of structured inspection techniques (e.g. Fagan inspection)
- Proved to be successful for checking GEDAE workproducts
- Supported by unit testing (to check the graph runs)

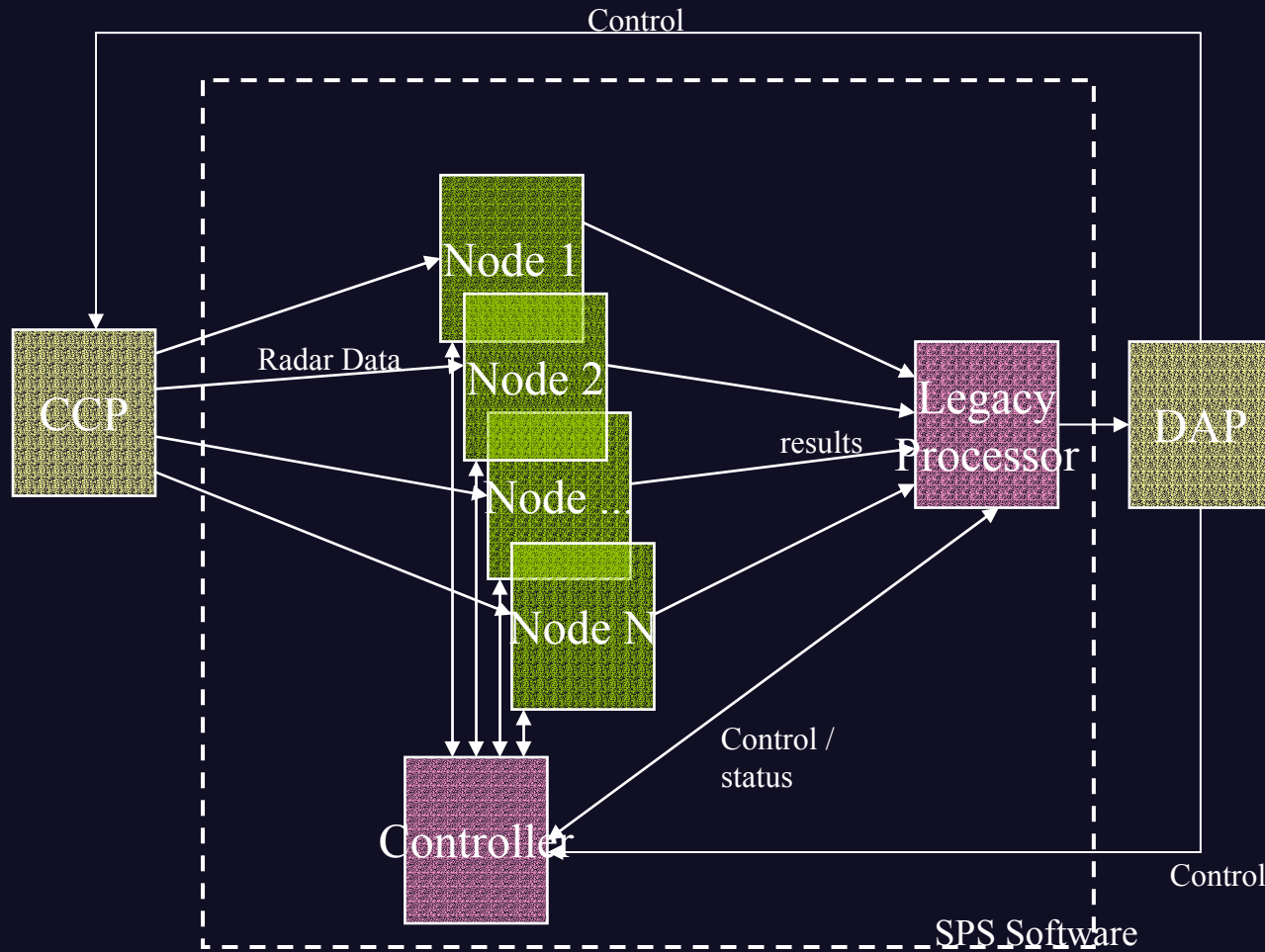
Repartitioning the SPS



Scope of the Job

- The SPS software was approximately 90k lines of code at T1
- This will be built up at T2 using approximately
 - 650 algorithms
 - 120 mode and sub-mode graphs

Architecture



Pilot Study

- Two radar modes developed in GEDAE
- Based on the new development lifecycle
- Proved the incremental development concept
- Benchmarked the process

Working with BHDS

- Key risks were identified and discussed with BHDS
 - Control of the processing throughput
 - Standalone target deployment
 - Enumeration

Conclusions

- Process working well
 - Ongoing optimisation
- 30 - 40% of the way through the development after 18 months
- On target for successful completion of project