

Capability Evolution:

Data Wrangler to Pan-Exercise Support

GORD YOUNGSON
CHIEF OPERATIONS OFFICER

g.youngson@simfront.com
office: 1.613.216.2300x322
cell: 1.613.858.8993
fax: 1.613.482.6594

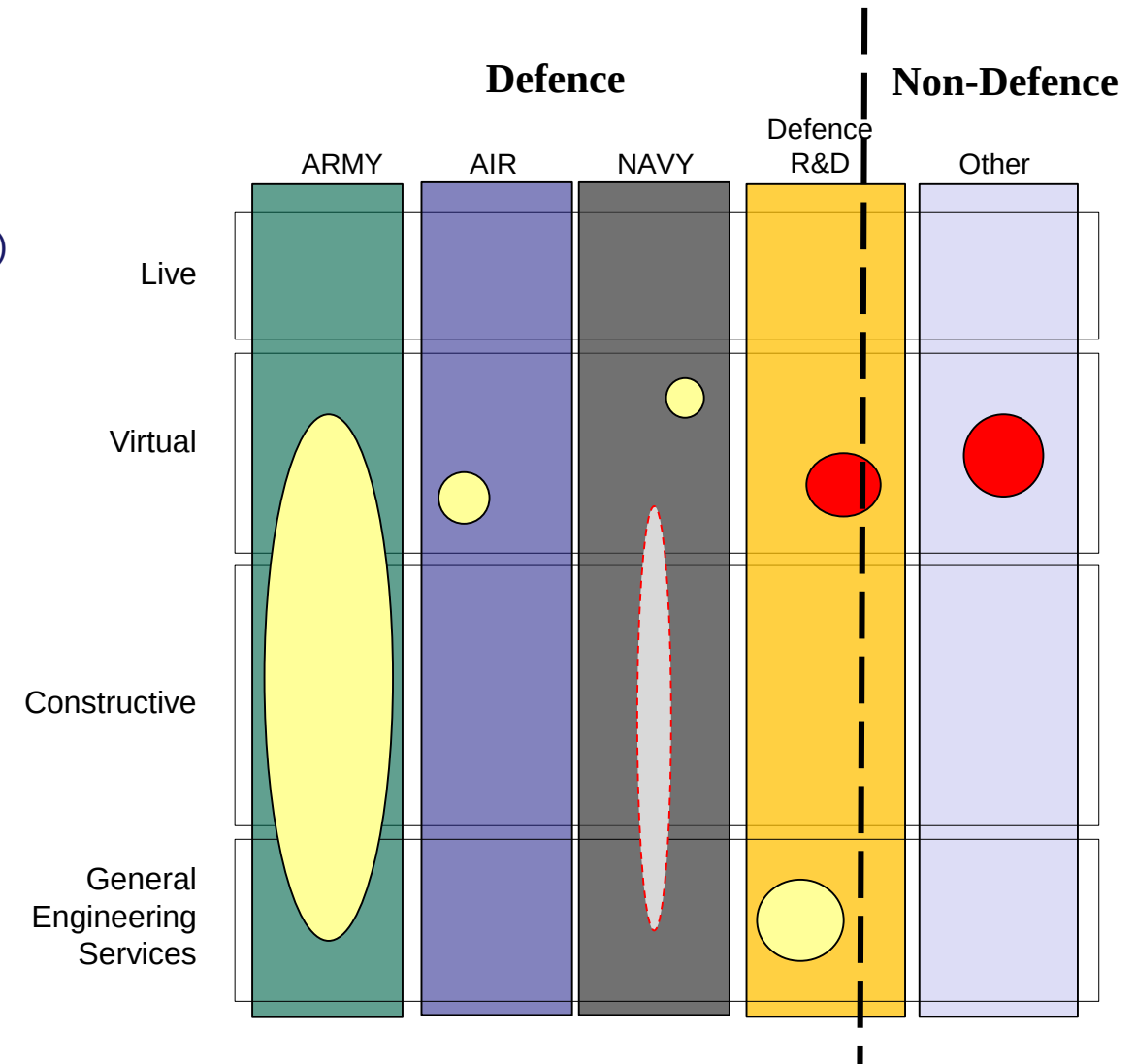


What I want to talk about ...

- Introduction
 - Who am I? Let's get that over with right now.
 - Who is SimFront? and more importantly: Why is SimFront?
- Past:
 - What was the 2005 operational deficiency?
 - What was the resolution path?
 - an introduction to VCCI
 - Where does that leave us?
- Current:
 - What is the 2018 operational deficiency?
 - Discussion: design intent of an exercise director - pan-exercise control
 - an introduction to Exetor
- Future/Next Steps:
 - E3D integration – accommodating Training Intent through to pan-exercise control.
- Closing/Questions

Who is SimFront?

- **SimFront is 13 yrs old**
 - **Approx 30 Engineers and Staff** (Small Business)
 - Products – currently used in Canada, UK and Australia
 - Services – to support the M&S environment
- **Core Skills**
 - Constructive and Virtual Modelling, Simulation and Training (MST)
 - Historical focus: C4ISR Army Domain – Canada (20+ years)
 - LCSS Mobile Domain Integration
 - LCSS HQ Domain (2.7.x and 2.7.2) Integration
 - Software Engineering (Java, C/C++, Web)
 - GIS Client/Server
 - Virtual and Augmented Reality
- **Simulation-to-C2/C4ISR Integration**
 - Modelling, Simulation Glue
 - Sim-Driven Testing (ex. LCSS)
- **Main Customers**
 - Canadian Armed Forces (DLCSPM, CADTC/CASC, NTDC)
 - UK Ministry of Defence, Australian Defence Forces
 - Oil and Gas
 - Defence Research and Development Canada organizations
 - Defence/Emergency Management partners
 - Ministry of Canadian Heritage



Statement of Operational Deficiency (1998)

- Training programs would be augmented through the integration of simulated systems and operational C2/C4ISR systems.
- This is not currently possible.

Resolution

- The Crown, with internal resources, developed a basic capability that linked ABACUS with the Athena Tactical System.
- It was privatized and became the initial offering from SimFront Simulation Systems.
- Work has continued on the evolution of the capability to date.

What is VCCI?

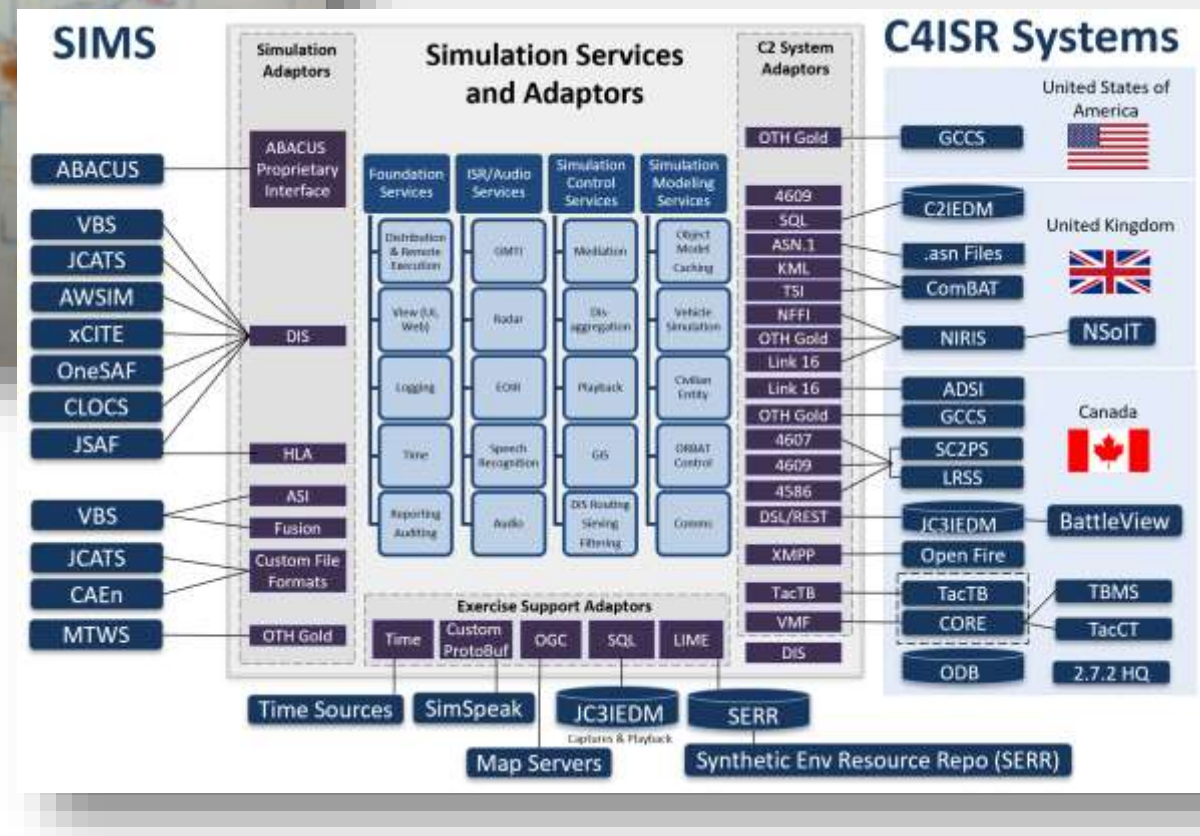


Starting strictly as a concept ...

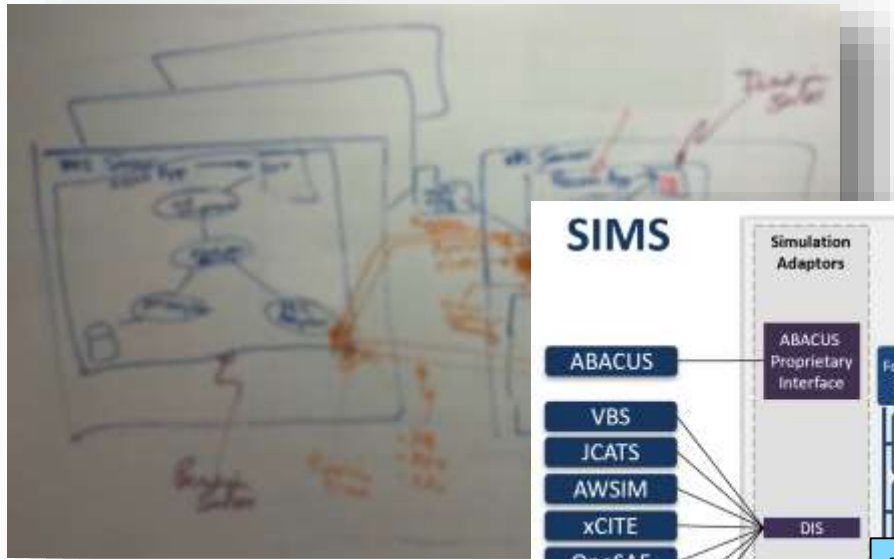
What is VCCI?



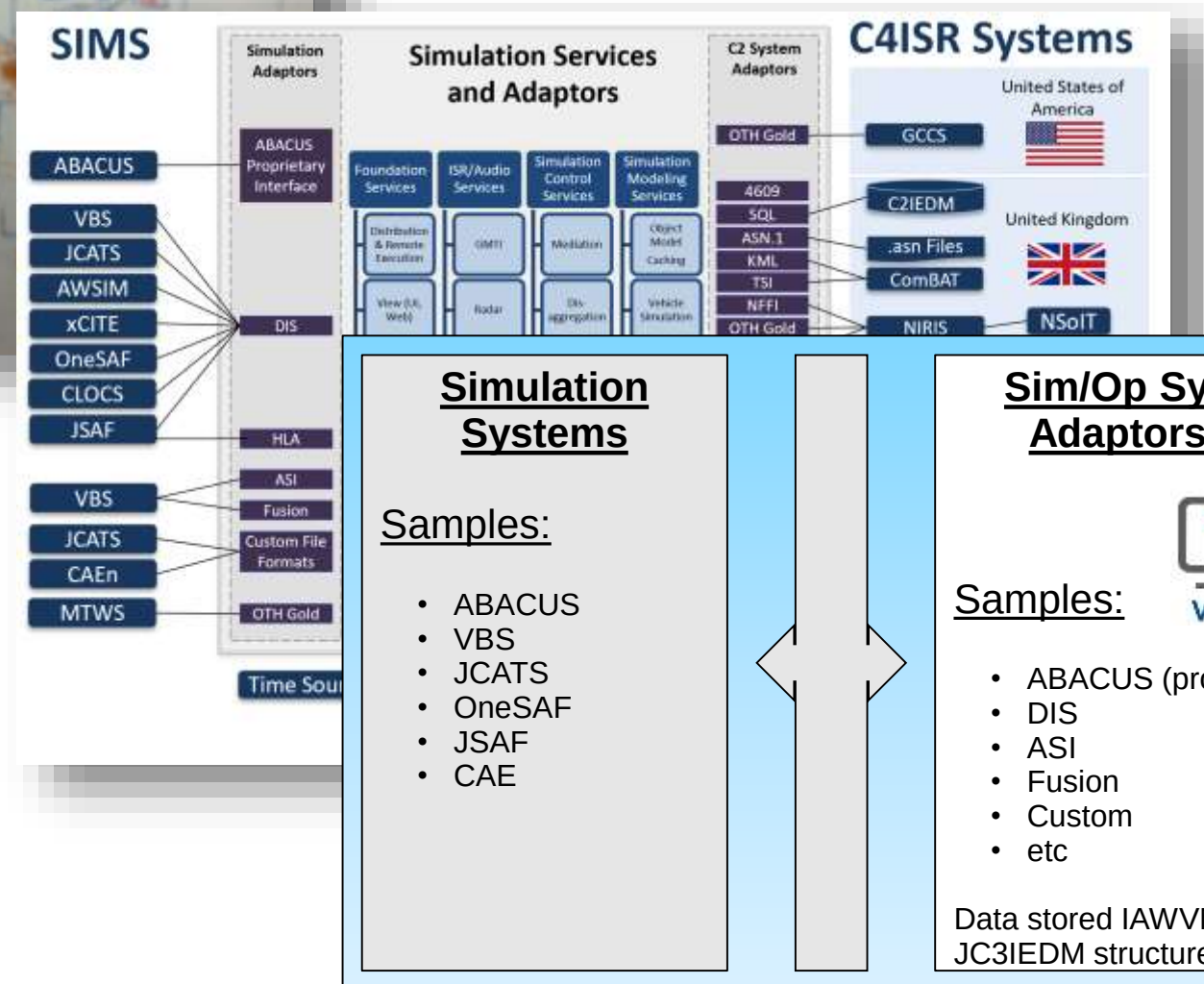
... it was formalized as a construct for very specific environments ...



What is VCCI?



... and evolved into a data wrangler. It became a tool to federate simulated and operational systems.

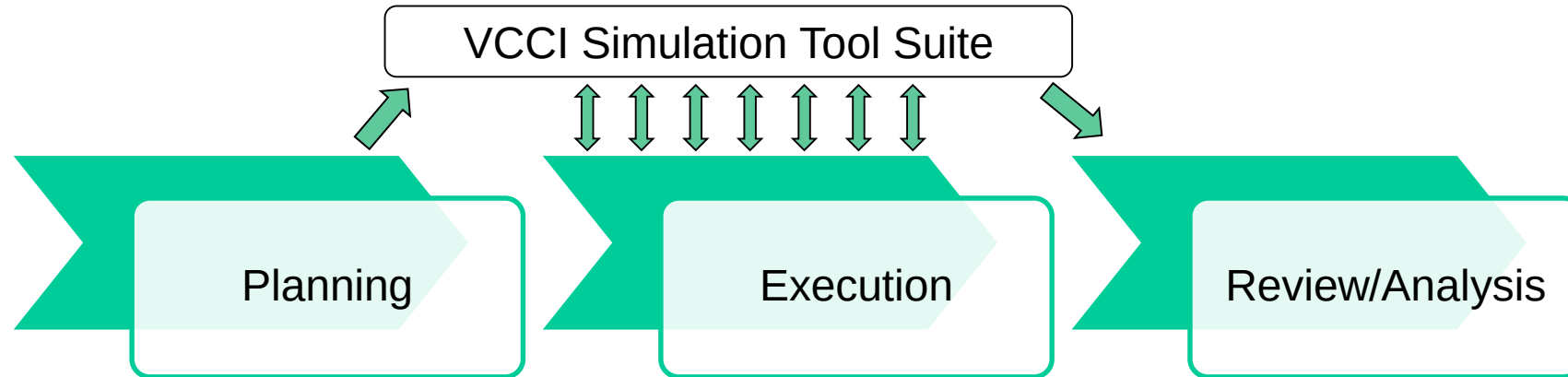


Natural progression

- During the execution phase, VCCI contains all of the data associated with both the simulation system and the C4ISR systems
- It was a natural step to extend the capability set to include:

After Action Review	Aramis
DIS Router	
Simulation/C2 Synchronization Tool (start state)	Genesis
Course of Action Tool	Blueprint
OCG Map Server	Latitude
Synthetic Environment Resource Repository	SERR
Radio Traffic Logging Tool	Scribe
Automated simulation-driven verification testing	Wringer
Simulation Environment Cross-Domain Solutions	Sifter

And where did that leave us?



- Tools support the execution of the Exercise
- Information made available to the STS upon completion of the Planning phase
- Information made available by the STS upon completion of the Exercise Execution phase
- Issue: no centralized information management structure at the pan-exercise level

What is the 2018 operational deficiency?

Statement of Operational Deficiency (2018)

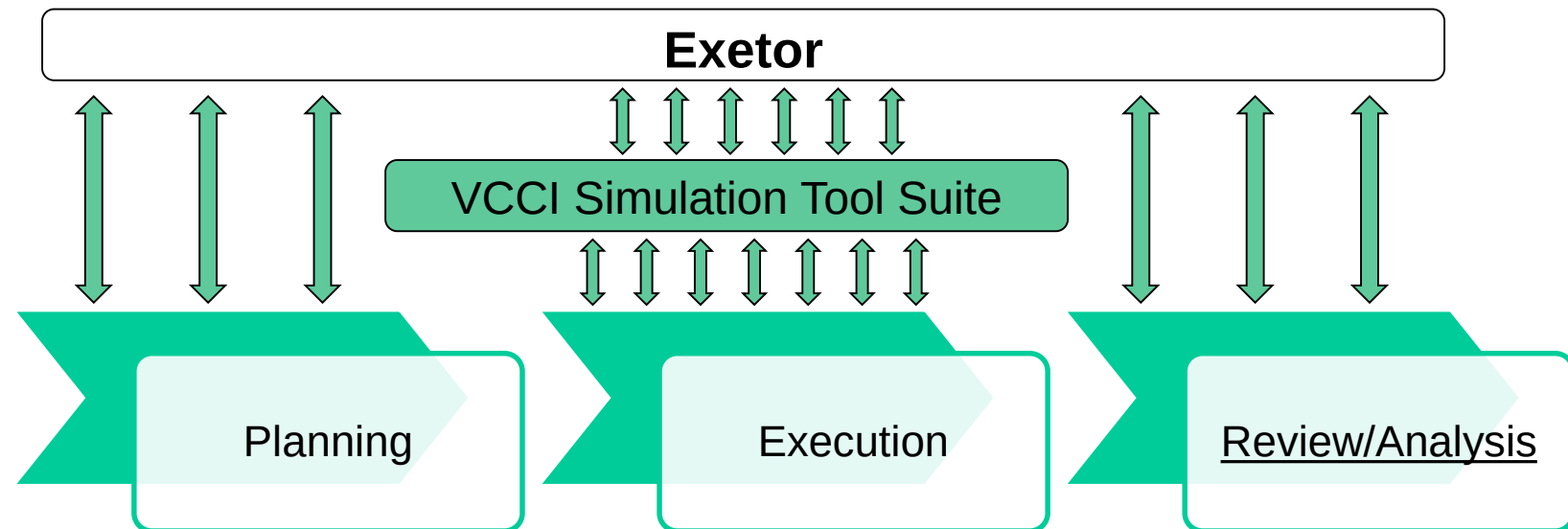
- Lack of a centralized information management structure that could support the exercise, from Planning, through Execution and Analysis phases, ie. the Integrated Action.

Resolution

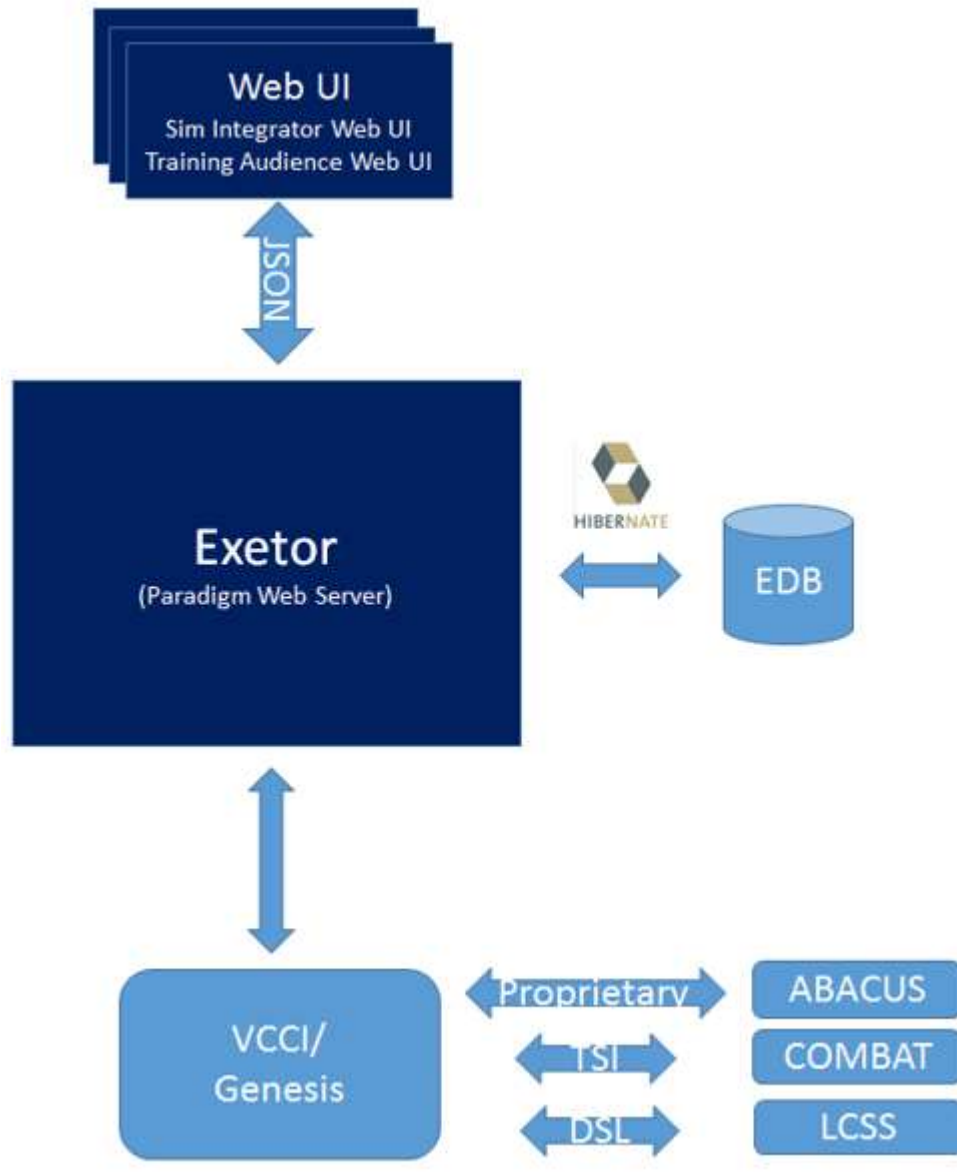
- Development of a facility/capability to:
 - deal with pan-exercise level training and simulation/C2 information.
 - bridge the gap between exercise design tools (EDT) and the synthetic/C2 environment
- Assumptions:
 - Facility will have controlled access to the **simulation** tools used in a synthetic event, either through VCCI or direct access (such as a third party tool required to exercise social media effects at a training event)
 - Facility will have controlled access to the **C2** tools being used in a training event. This access will be accomplished both direct and via VCCI

Enter Exercise Director (Exetor)

- Exetor is planned to deal with pan-exercise level training and simulation/C2 information. Examples include:
 - Training Information
 - Training events from a Master Event List (MEL) application
 - Man-in-the-loop control for creating/modifying/executing events and associate event triggers (automated injects, emails, phone calls, etc.)
 - Simulation/C2 Information
 - Simulation application inputs
 - examples: ABACUS, VBS
 - VCCI inputs/outputs
 - C2 inputs/outputs



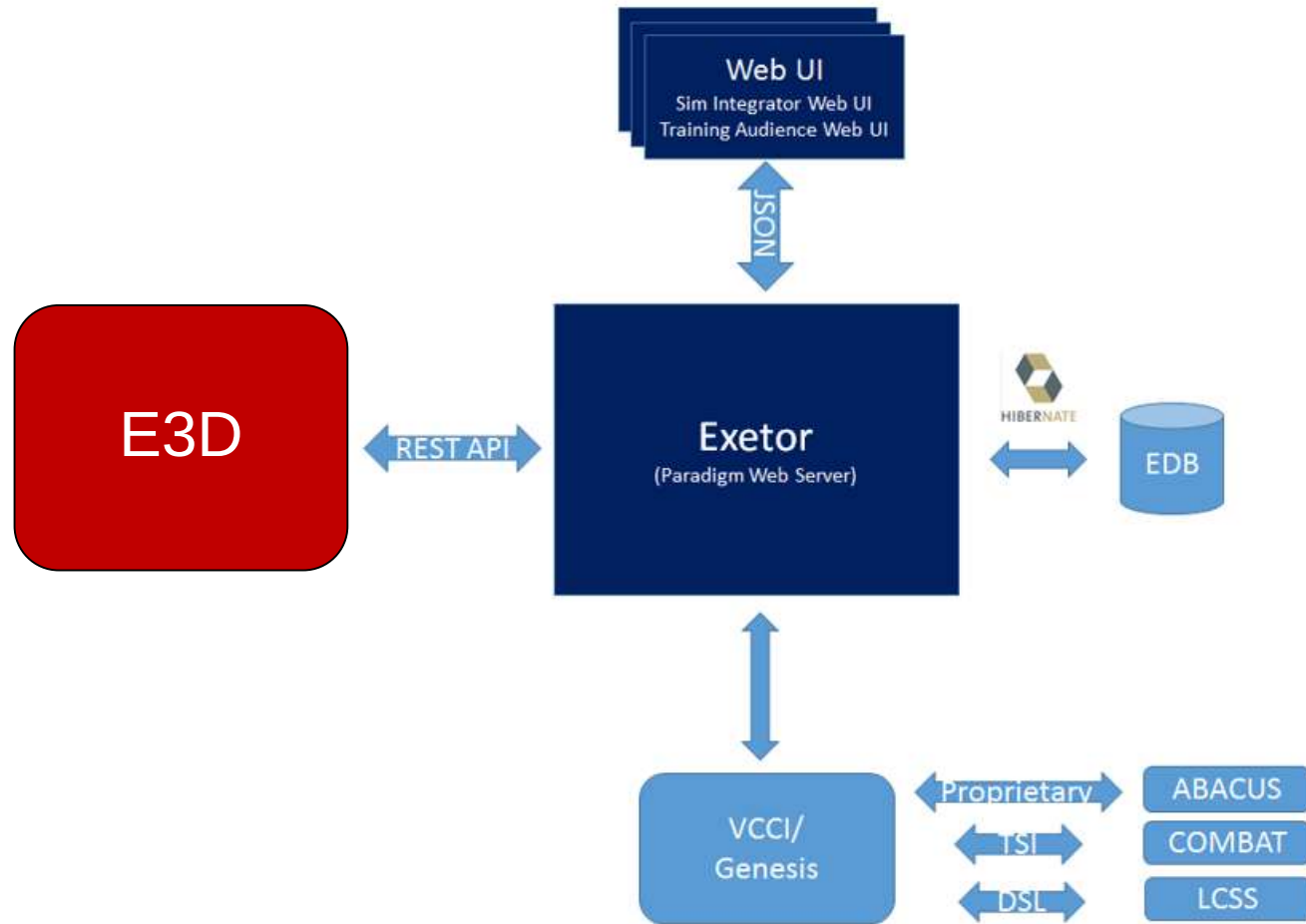
Exetor being developed as we speak ...



High Level Design

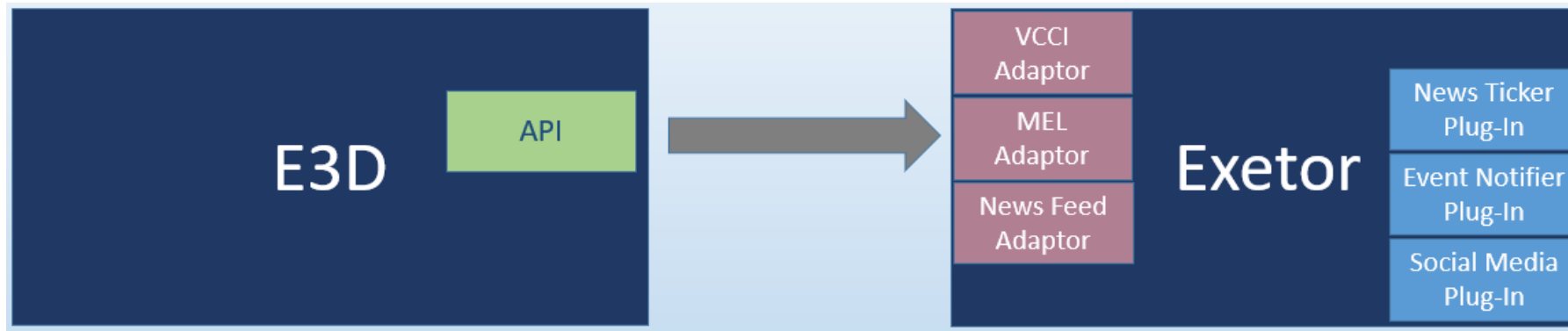
- Exetor Server – provides all the back-end processing for Exetor.
- EDB – Exetor database – stores the persistent information required by Exetor.
- VCCI/Genesis – as a transport mechanism for access to both simulation and C2 systems
 - using library of internal request/ response/ subscription mechanisms for communication.
- Web UI:
 - Sim Integrator Web UI – a thin web client built around the MEL events for the training exercise.
 - Training Audience Web UI – to provide targeted content to the training audience (purpose built)

Next Steps ... E3D Integration



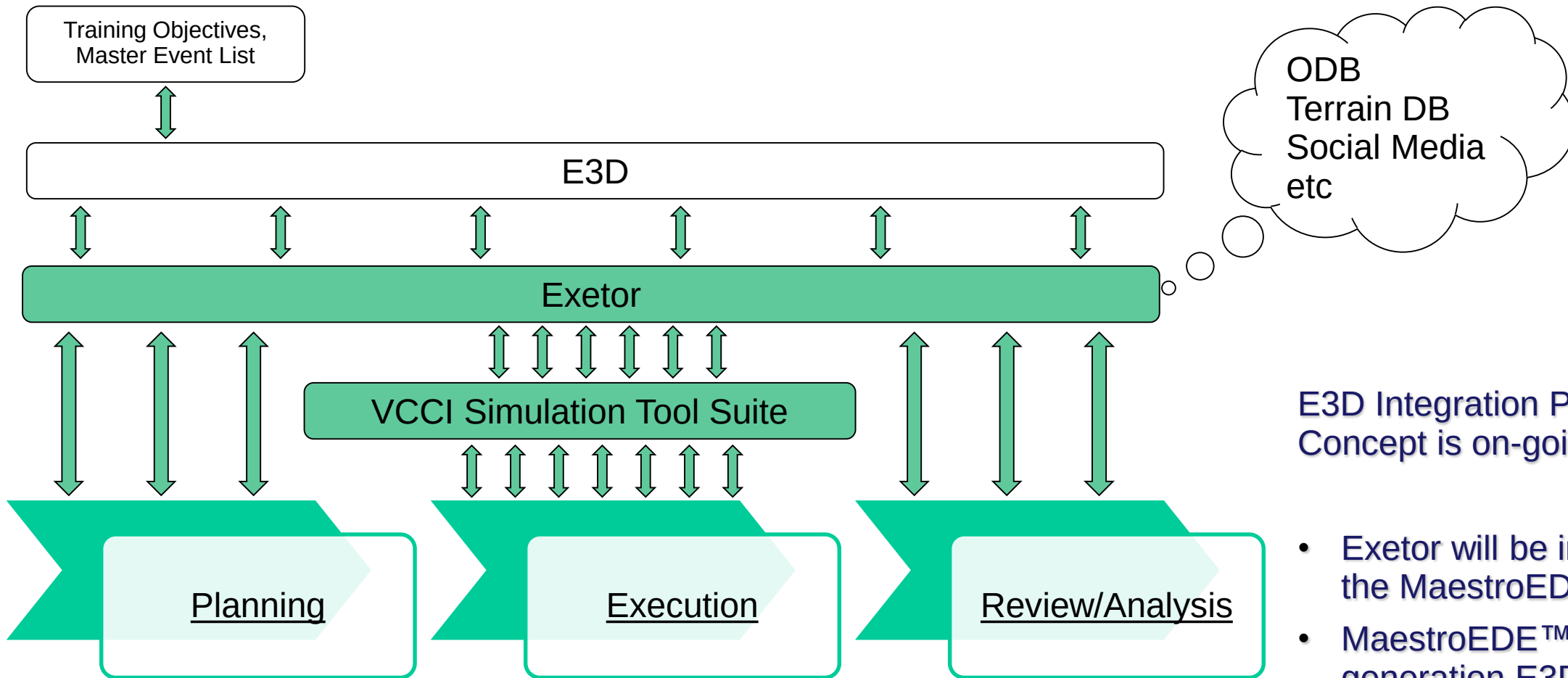
- E3D $\equiv$ Exercise Design, Development, Delivery
- E3D/EDT: to provide all required requests, methods, etc. to support the importing of MEL events from the EDT.
- Tool would provide an API for bi-lateral information access

So ... why integrate an E3D tool?



- Integrated Training capability – better linkage of training information
 - Pre/post exercise events/environment
 - Exercise development and setup
 - Exercise execution
 - Exercise reporting/AAR
- Automated delivery of event triggers to simulation tools, as appropriate
- Communication of MEL events to interactors and simulation integrators

The desired goal state ...



E3D Integration Proof of Concept is on-going:

- Exetor will be integrated with the MaestroEDE™ suite
- MaestroEDE™ is a next generation E3D system developed by Calian Ltd
- Demonstration currently planned for February 2019

A few last thoughts:

This system is equally applicable to:

- **Experimentation**
- **Concept Development**
- **Mission Rehearsal, and**
- **Training**

**Some time we need to talk about Simulation
Driven Verification.**

Thank you for your time.