Development of an Analysis Tool for Cybersecurity Assessment

Sprint 2
Presented by Vetronica

Team Members/Roles

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What is our project?

Problem Statement:

The goal in this project is developing a cybersecurity planning tool for executing vulnerability assessment for operational environments, application of cybersecurity in operational environments and conducting decision analysis of crucial infrastructure by implementing model-based systems engineering.

We are looking at two modeling tools to see which features would be ideal.

Current State of Project

Capella visuals:

Workflow of Crowd_Surveillance_System_in_DARC

Operational Analysis

Define Stakeholder Needs and Environment

Capture and consolidate operational needs from stakeholders
Define what the users of the system have to accomplish
Identify entities, actors, roles, activities, concepts

System Analysis

Formalize System Requirements

Identify the boundary of the system, consolidate requirements
Define what the system has to accomplish for the users
Model functional dataflows and dynamic behaviour

Logical Architecture

Develop System Logical Architecture

See the system as a white box
Define how the system will work so as to fulfill expectations
Perform a first trade-off analysis

Physical Architecture

Develop System Physical Architecture

How the system will be developed and built
Software vs. hardware allocation, specification of interfaces, deployment configurations, trade-off analysis

Documentation of Crowd_Surveillance_System_in_DARC

Styles | Format | Font | Size

This sample model illustrates how the concepts and views introduced by the DARC viewpoint can be exploited in each of the Arcadia perspectives of a Capella system architecture design model.

Operational Analysis

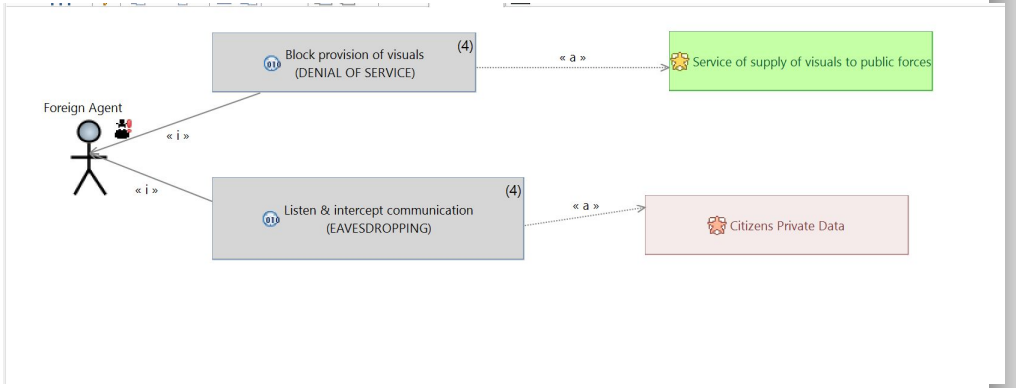
The Operational Analysis presents the context in which our system will evolve. In it, the Ministry of Interior wants to obtain reports from the Mobile Police Forces on how a public event involving a Crowd is going on. His ultimate purpose is to make an assessment of the situation and provide relevant orders to police forces so that they can make enforce the law.

In such context, we can already identify an Foreign agent who aims at disturbing the reporting to the Ministry of Interior. It is considered as a Threat Source.

Operational Architecture view [OAB] Operational flows for crowd surveillance provides a comprehensive view of the activities performed by these entities in order to reach their goals. These goals are described by Operational Processes Visualization of public events and Execution of law enforcement orders.

[TDB] Threats & Assets view presents a primary asset (*) identified in this perspective: Provision of public event visuals to the Ministry of Interior. It also presents a threat that threatens this primary asset: Block visualization of public events.

(*) Primary assets are information or services (activities, processes or functionalities) that are valuable for the stakeholders and as such that need to be protected. In this case, Provision of public event visuals to the Ministry of Interior is a service-kind of primary asset that is realized by the Operational Processes identified before.



Current State of Project

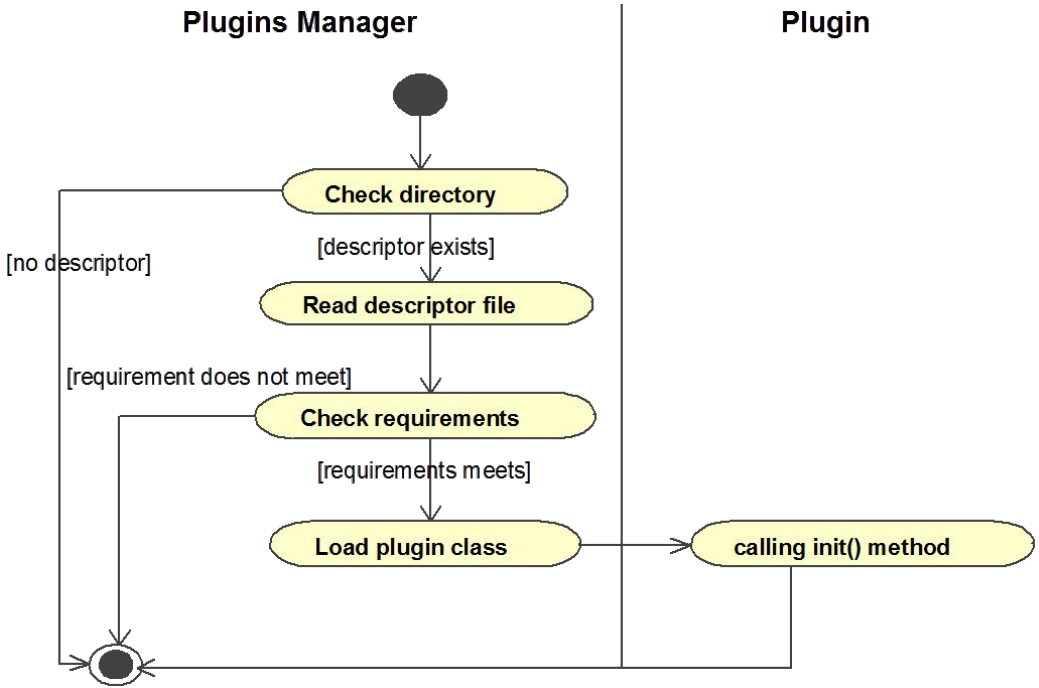
Why plugins?

- Add functionality without modifying core application
- Can be developed by third parties
- Enables ecosystem built around core software

MagicDraw plugins:

- SysML
- UAF plugin
- ParaMagic

MagicDraw plugin system architecture



Review of Previous Sprints
Sprint 1:

To-Do

- Begin Researching Cyber Security Analysis Tools
- Determine Hardware and Software System Requirements

In Progress

- Acquire MagicDraw Licenses
- Analyze Provided Scholastic Papers for Project Direction
- Gain a Working Understanding of Capella Software
- Create Project Requirements
- Begin Learning About MBsE Processes and Procedures

Completed

- Create Sprint 1 Backlog
- Create Product Vision Statement
- System Requirements Specification v1
- System Design Document v1
- Sprint 1 Demo

Review of Previous Sprints
Sprint 2:

To-Do

- Research MagicDraw Plugins
- Research Capella Plugins
- Continue SRS (v3)
- Continue SDD (v3)

In Progress

- Continue to gain understanding of Capella software
- Continue perfecting project requirements
- Continue learning about MBSE processes/procedures
- Continue determining Hardware/Software System Requirements

Completed This Sprint

- Sprint 2 Demo
- Acquire MagicDraw Licenses
- Analyze Provided Scholastic Papers for Project Direction
- SDD (v2)
- SRS (v2)
- Test Plan

Sprint 3 Preview

- Review previous sprints (Project Direction)
- Expand on plugin systems in both softwares
- Determine which plugins work best for the system
- Find requirements for next-gen plugin system
- Continue revising the system requirements for our software
- Use results of research into MagicDraw and Capella to drive our SDD/SRS/Test Plan

What Could Have Gone Better

- Direction of the project.
  - Scope of the project is not software-based, but research based.
- Acquiring MagicDraw licenses was a key issue for us
  - We followed up frequently, however due to the bureaucracy we obtained them last week
  - Therefore we have reduced hands-on experience with the software

Questions?