

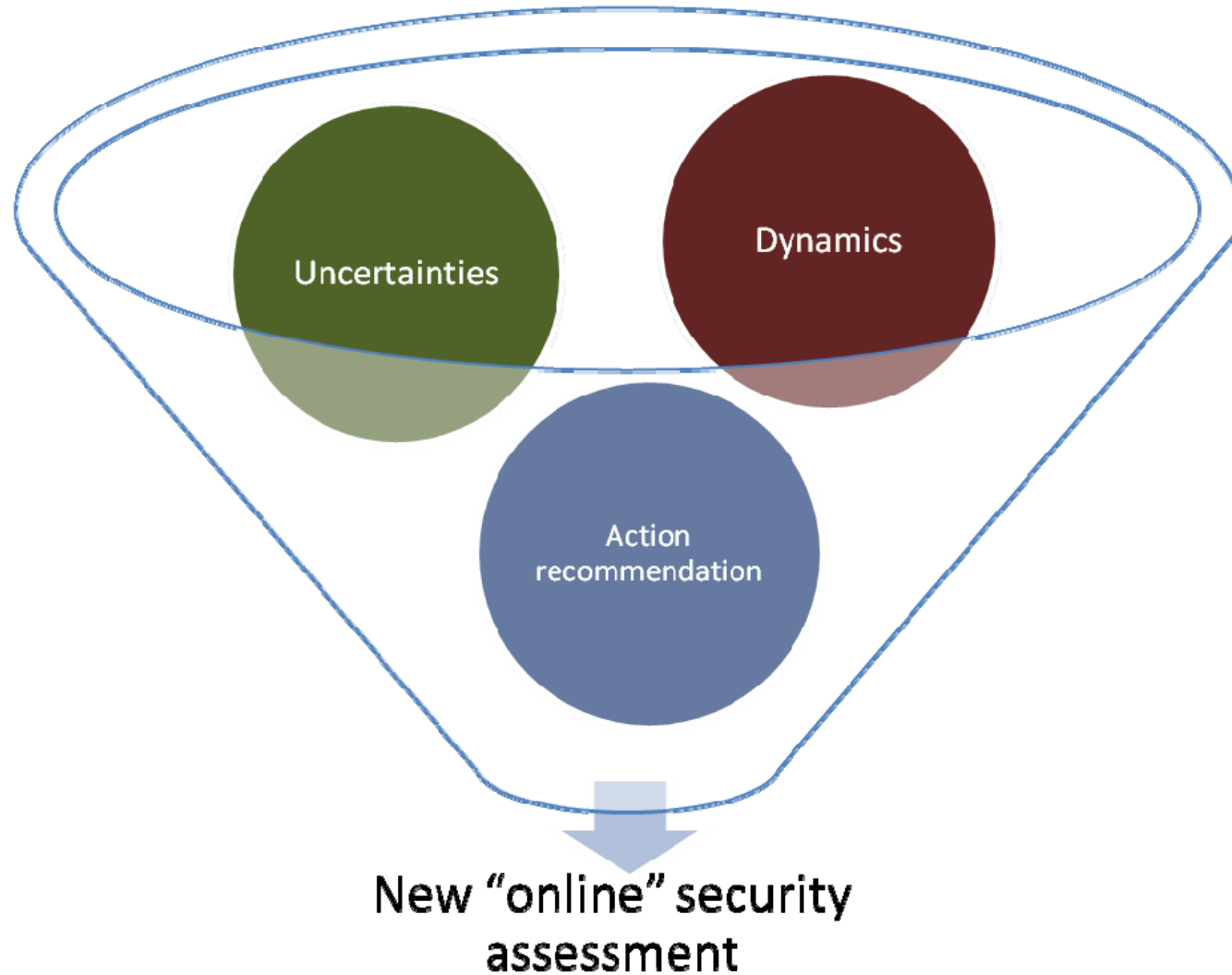
iTesla Project

Innovative **T**ools for **E**lectrical **S**ystem Security within **L**arge **A**reas

General architecture of the iTesla Project

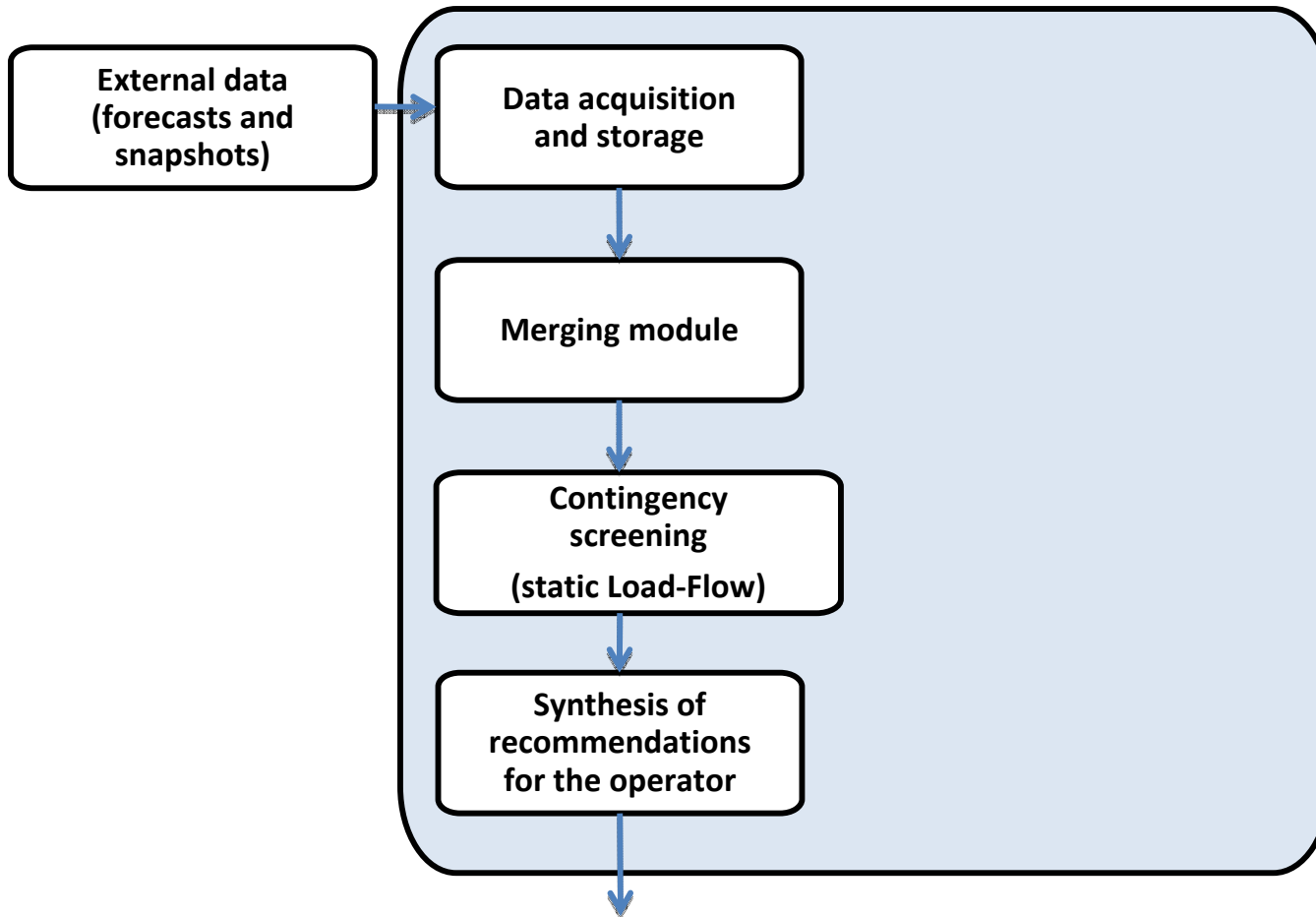
Brussels, Tuesday 14 January, 2014

Targeted solution:



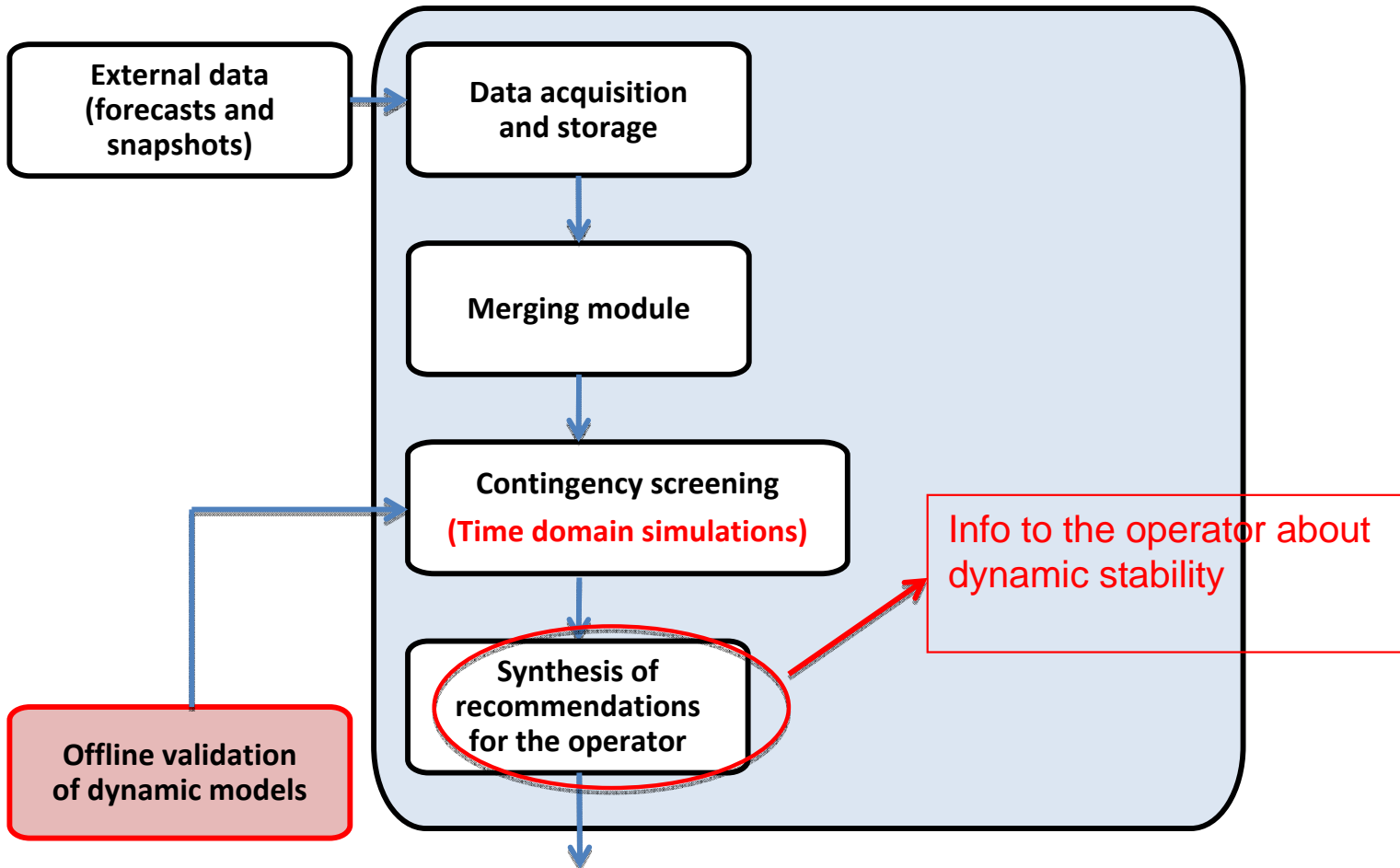
Starting point: the existing solution

Online



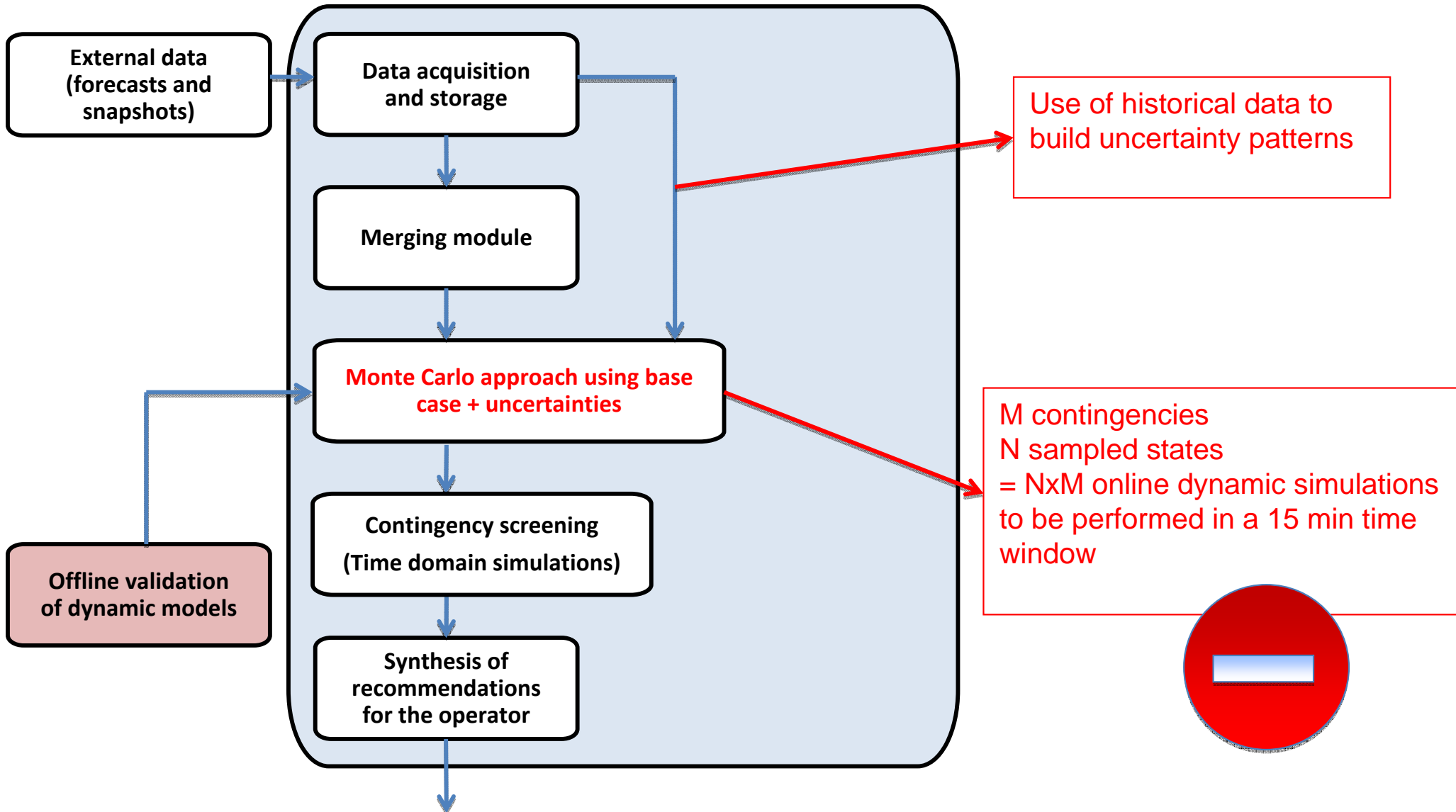
Upgrade #1: dynamic simulations

Online



Upgrade #2: uncertainties

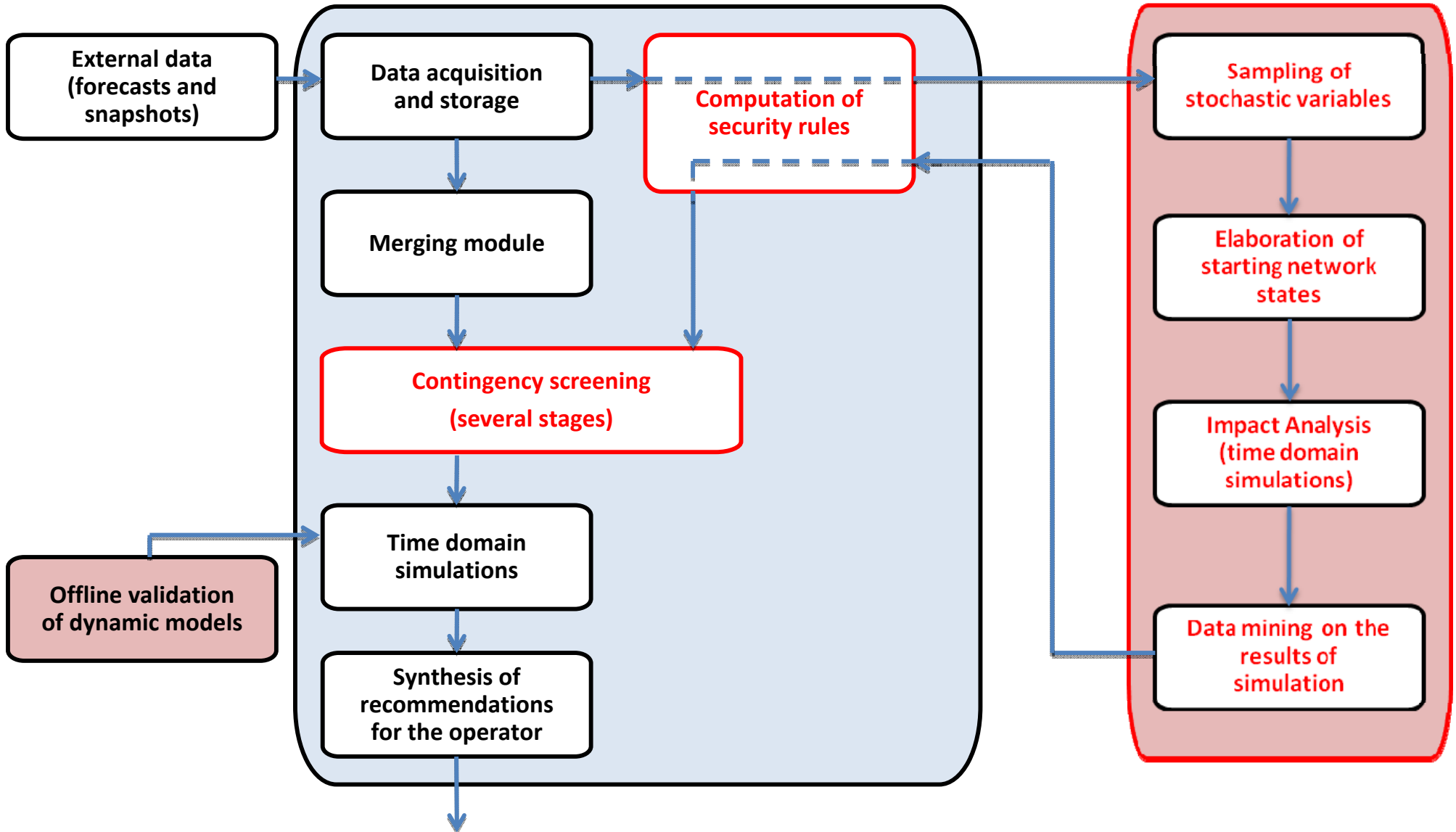
Online



Upgrade #3: Filtering process

Online

Offline



Upgrade #3: Filtering process

Offline workflow properties:

- Not permanently running: only on demand for “offline” security rules update
- Called once per week
- Use of historical data and data mining techniques to build “similar” situations to forecast not yet available
- Offline computation platform has much more computation capacity than the online platform but only used periodically

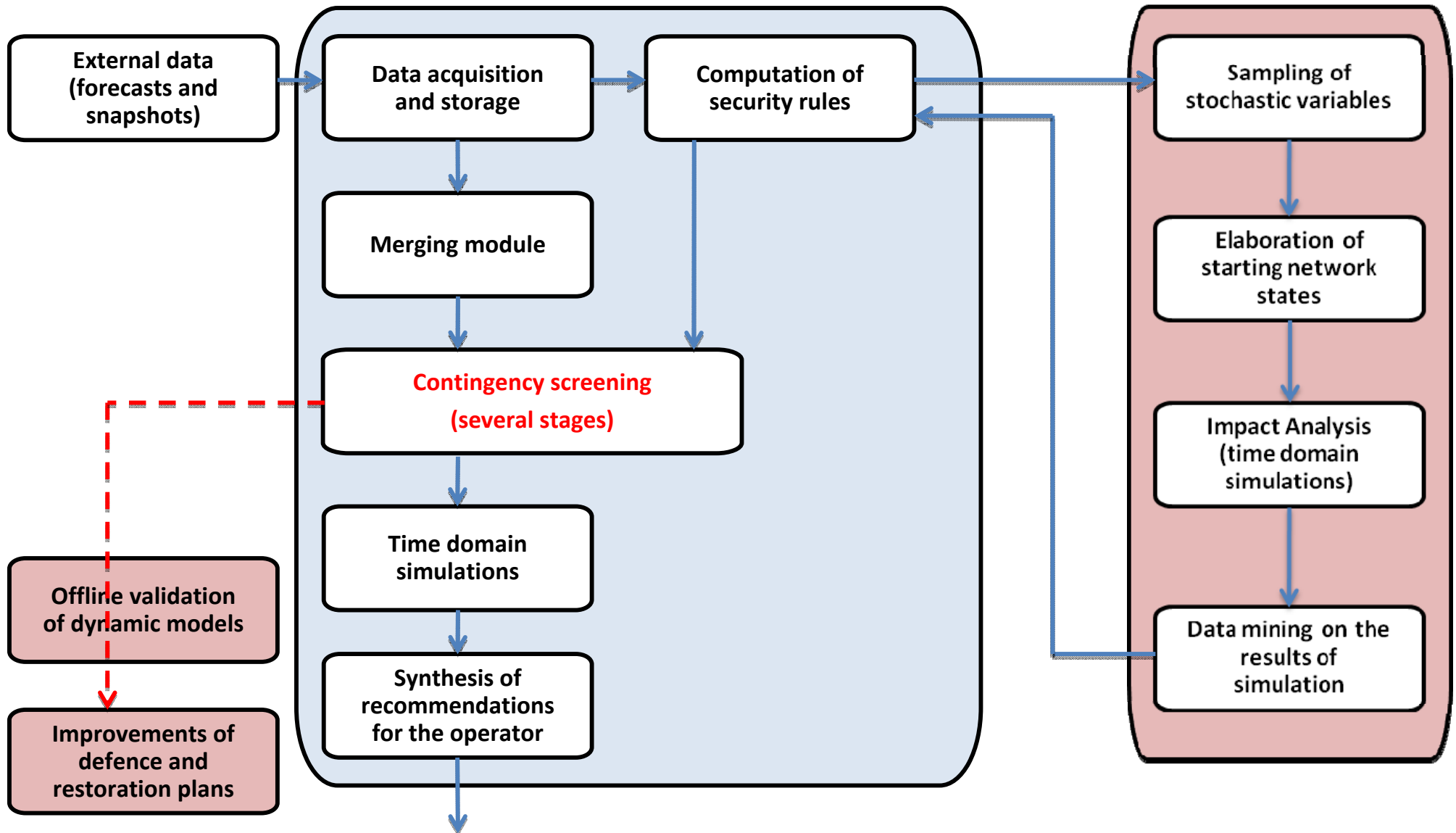
Online workflow properties:

- “online” does not mean real time but “permanently running”
- Analyses forecasts from D-2 to real time
- Requires results of offline workflow
- High filtering rate expected to reduce the online time domain simulations
- Number of online samples \ll Number of offline sampled cases

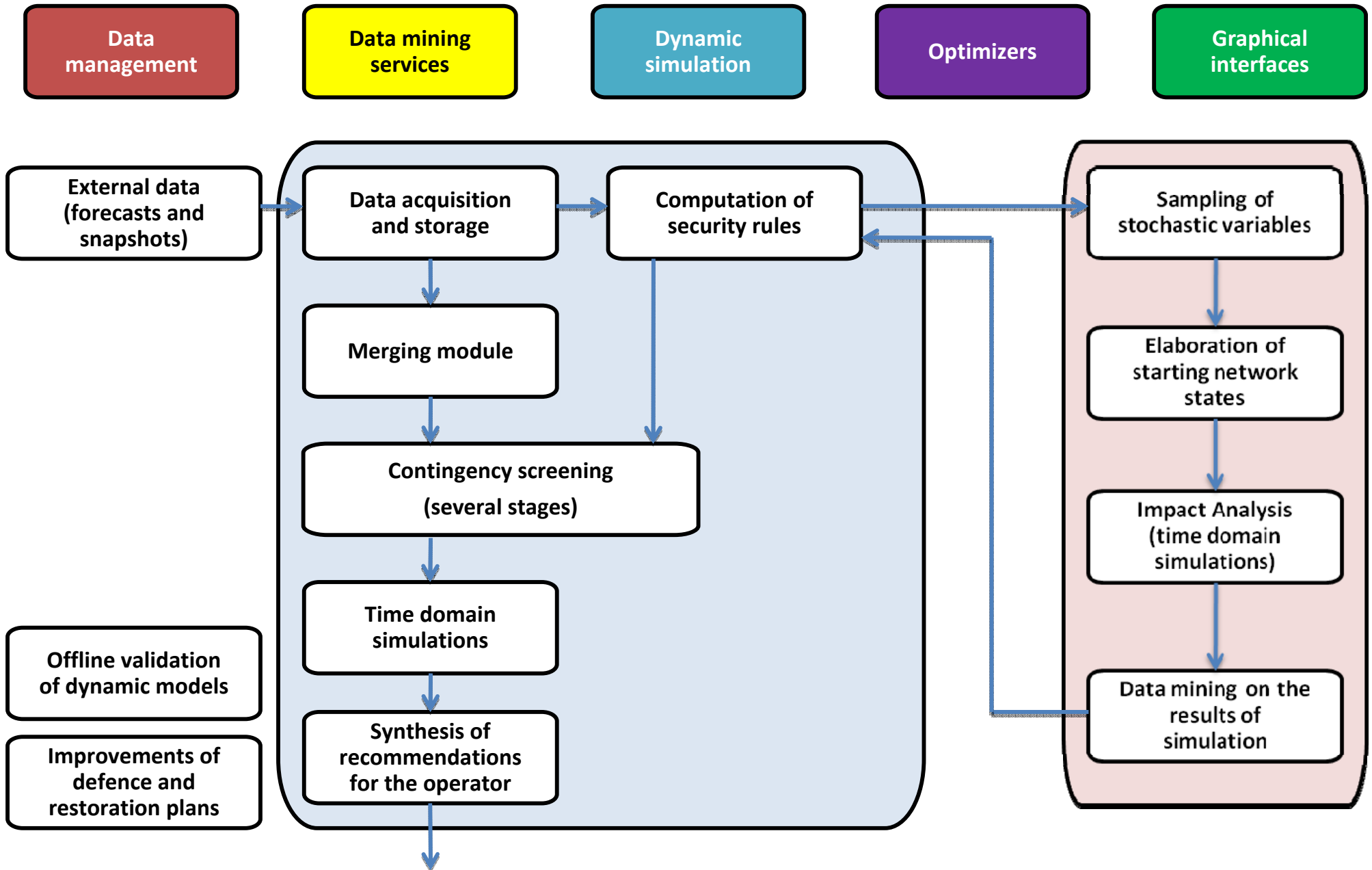
Proposed final architecture

Online

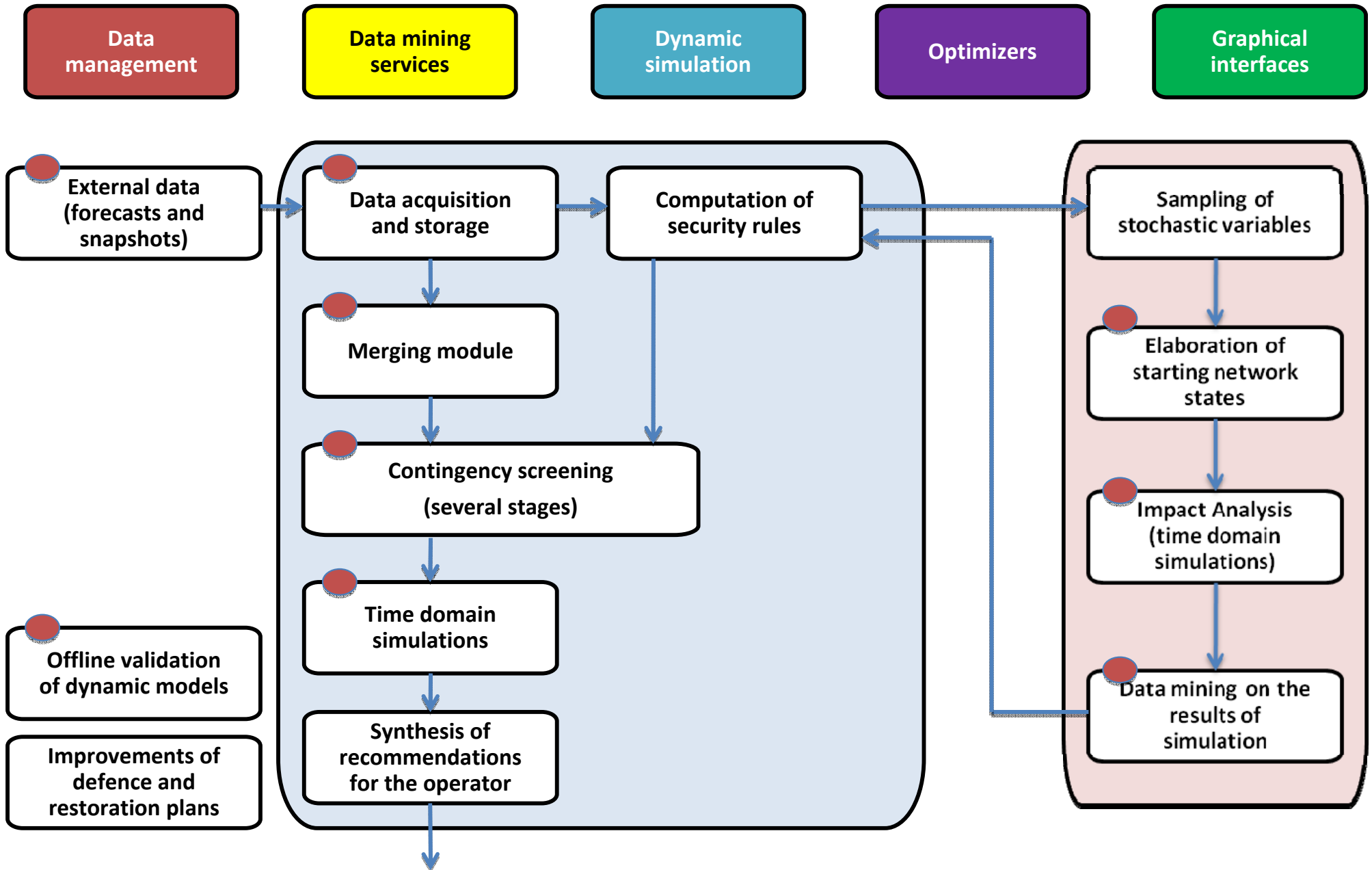
Offline



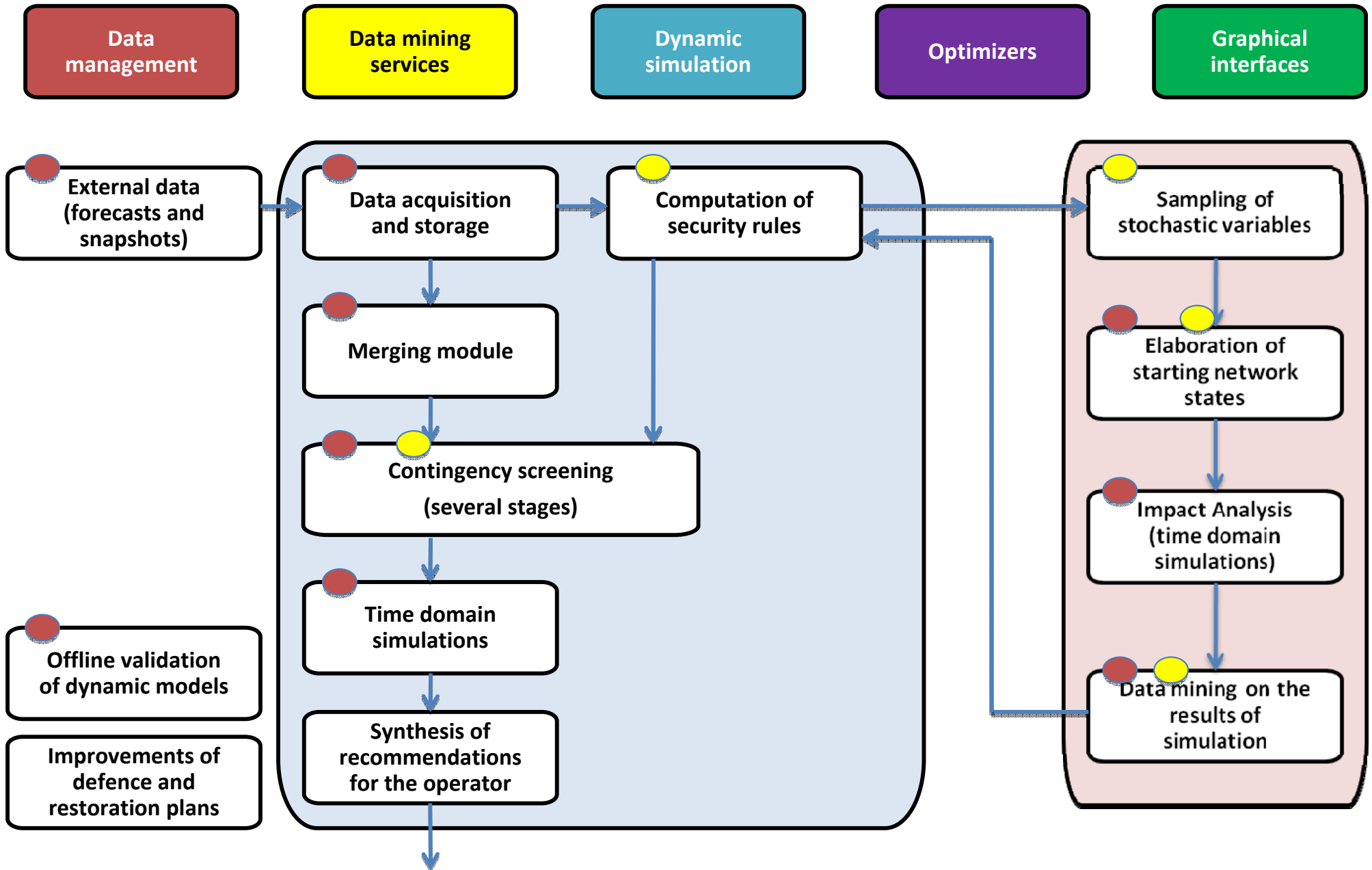
Required services



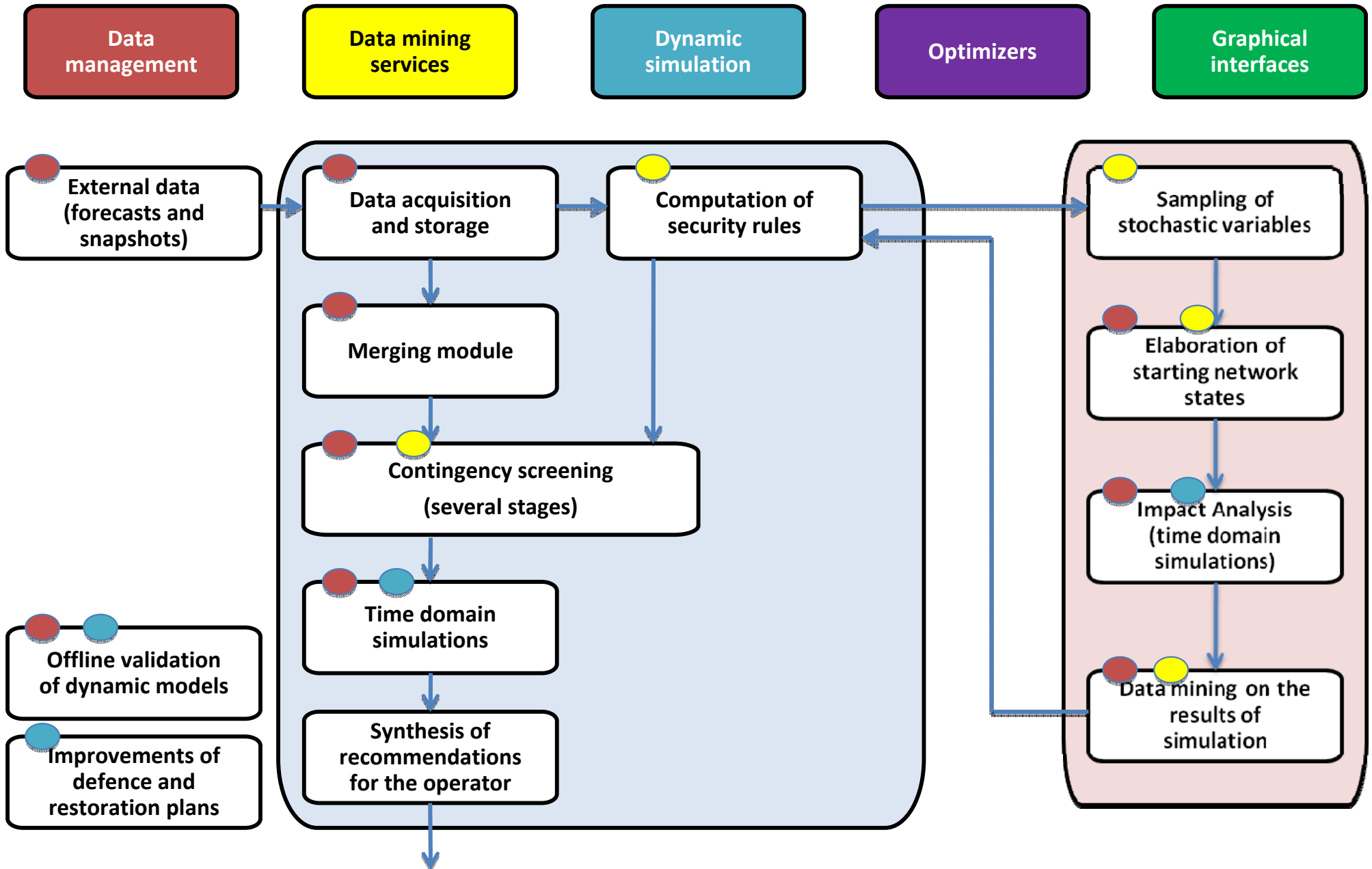
Required services



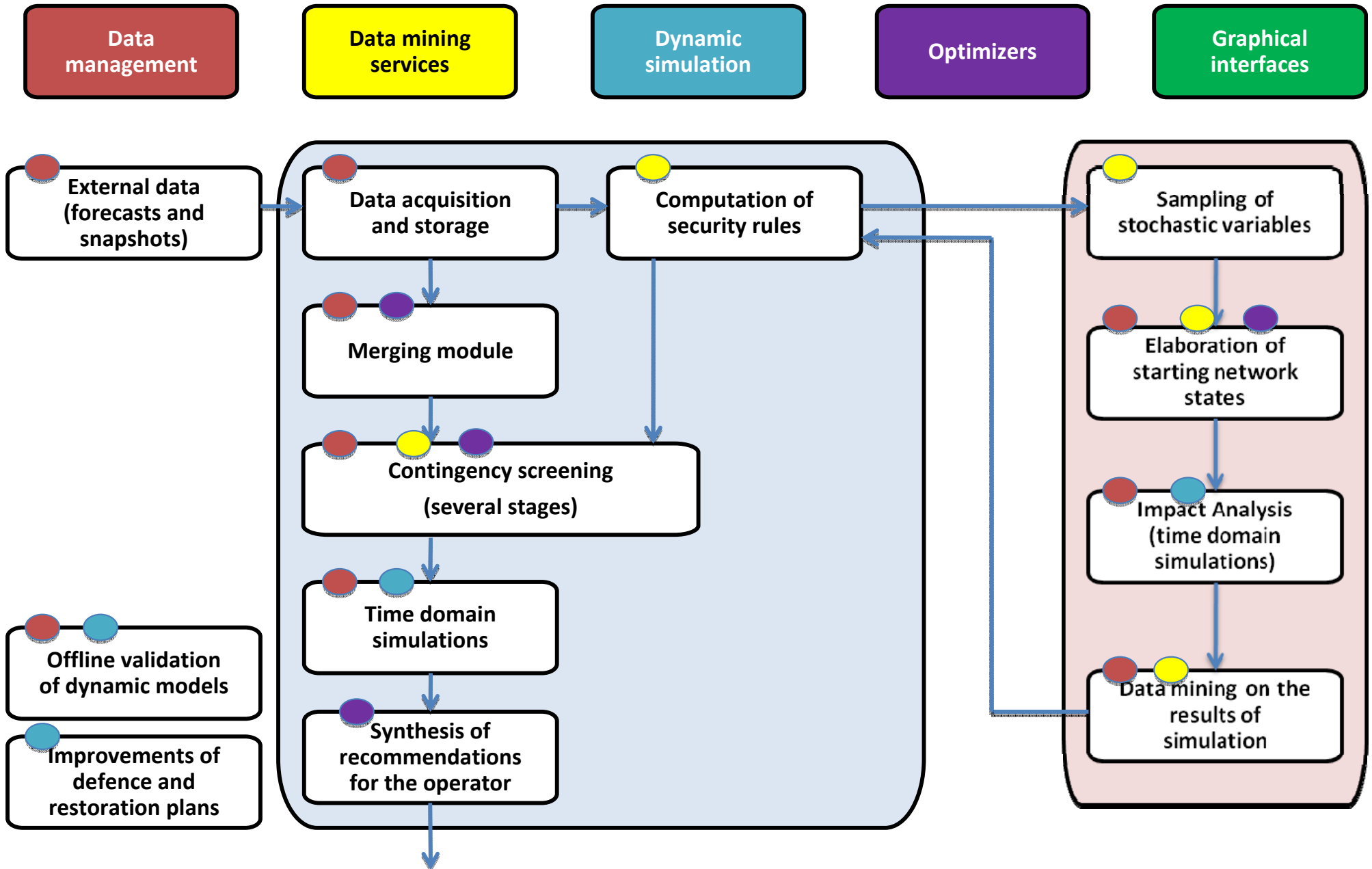
Required services



Required services



Required services



Required services

