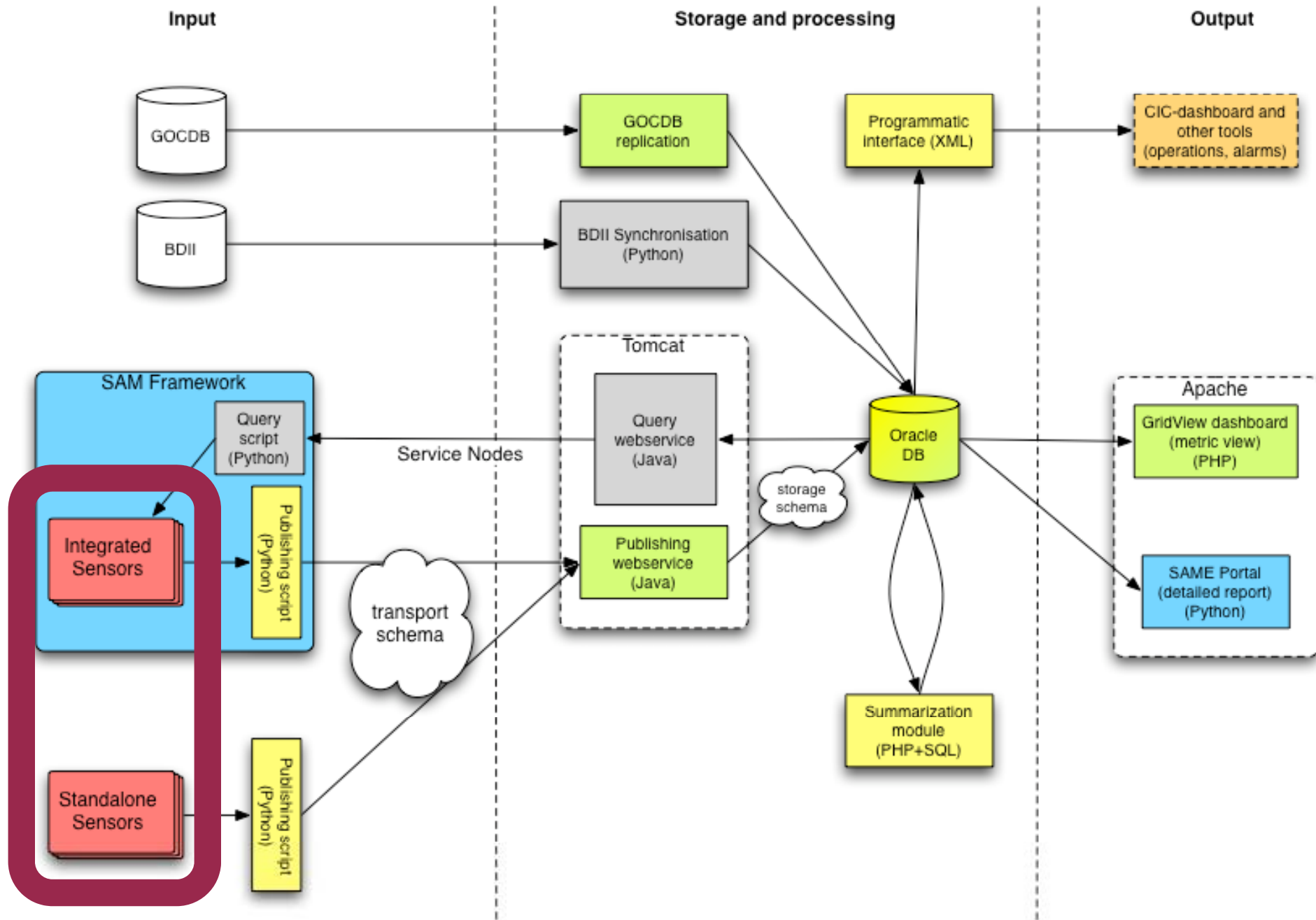# SAM Sensors & Tests

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CERN IT/GD

SAM Review I.

21. May 2007, CERN
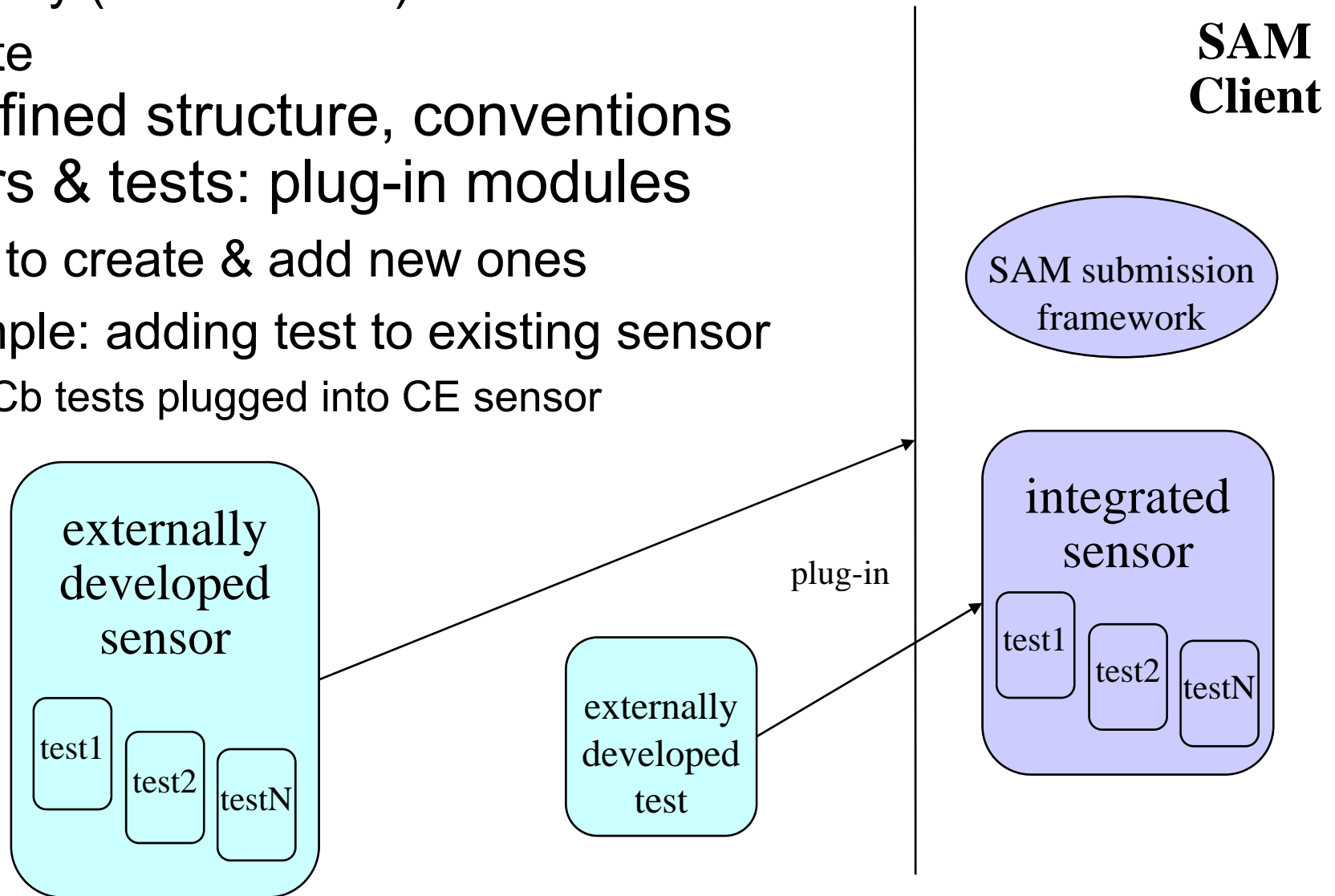
Outline

- definitions
- sensor & test types
- execution
- existing sensors & tests
- open issues

Sensors in the SAM framework

Definitions – sensor & test
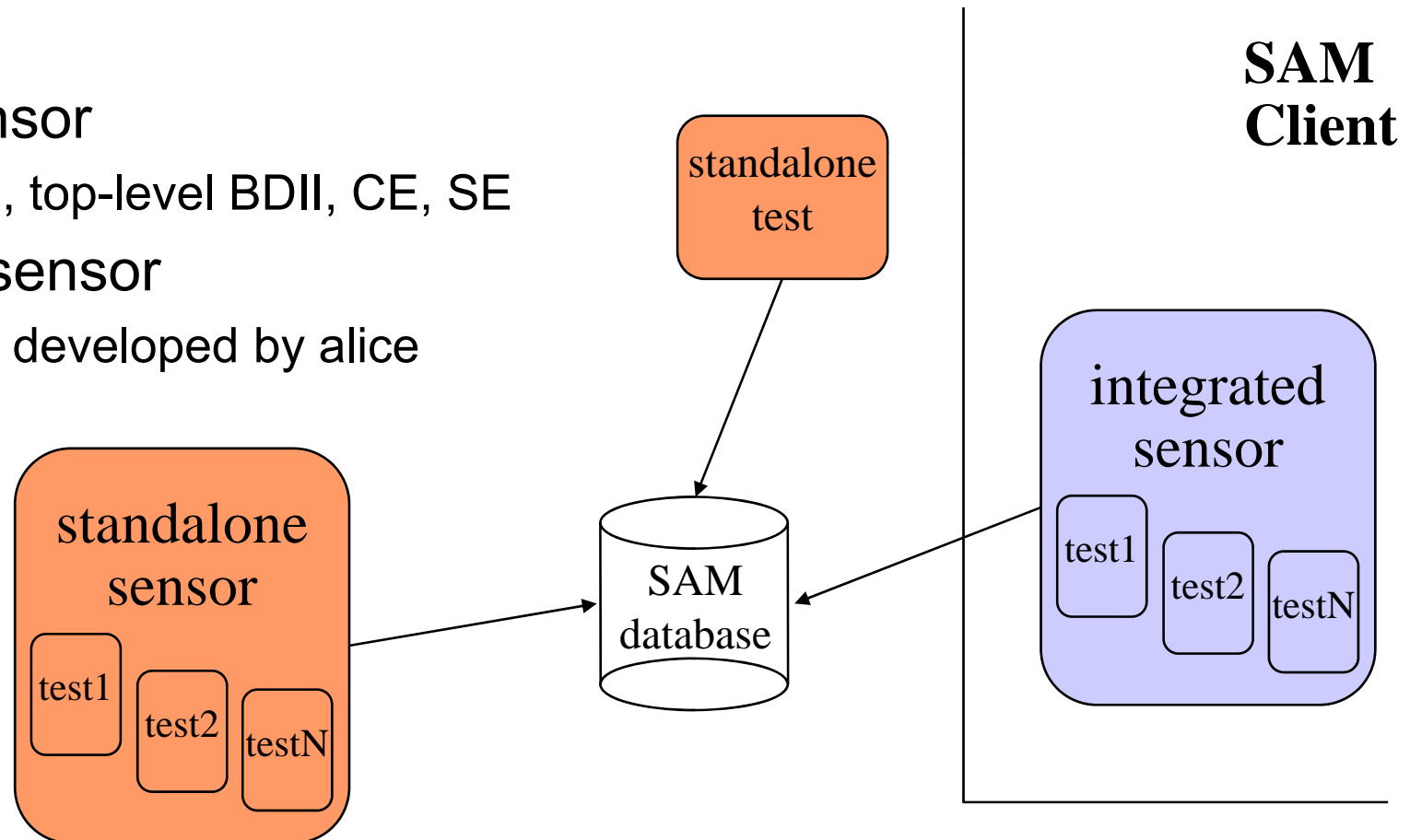
- ## Test
  - single unit checking functionality of a service
  - executables (scripts)
- ## Sensor
  - container object
    - tests
    - execution environment
      - configuration, test preparation, inter-service dependencies, test sequence definition
  - types
    - *integrated*: running within the SAM framework
    - *standalone:* existing monitoring tool
  - grouping tests by functionality
    - per GRID service
    - for multiple services

SENSOR

exec. environment

test1

test2

testN

Integrated sensors
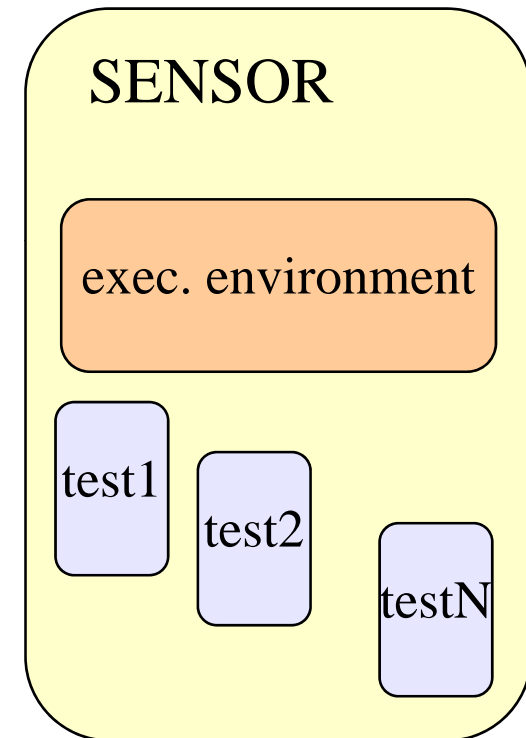
- run by SAM submisson framework
 - centrally (SAM UI host)
  - on site
- pre-defined structure, conventions
- sensors & tests: plug-in modules
  - easy to create & add new ones
  - example: adding test to existing sensor
    - LHCb tests plugged into CE sensor

SAM Client

SAM submission framework

integrated sensor

test1 | test2 | testN

externally developed sensor

test1 | test2 | testN

externally developed test

plug-in

Standalone sensors

- run outside the SAM framework
  - independent software
- already existing testsuite or monitoring tool
  - no modifications on its code!
- examples
  - Gstat sensor
    - site BDII, top-level BDII, CE, SE
  - VOBOX sensor
    - testsuite developed by alice

SAM Client

standalone test

standalone sensor

test1 test2 testN

SAM database

integrated sensor

test1 test2 testN

Execution workflow

- execution
  - via SAM submission framework
  - other mechanisms
    - cron, etc.
- publishing results
  - using SAM web services
  - stored in SAM database
- displaying results
  - SAM portal
  - Gridview

Existing SAM sensors
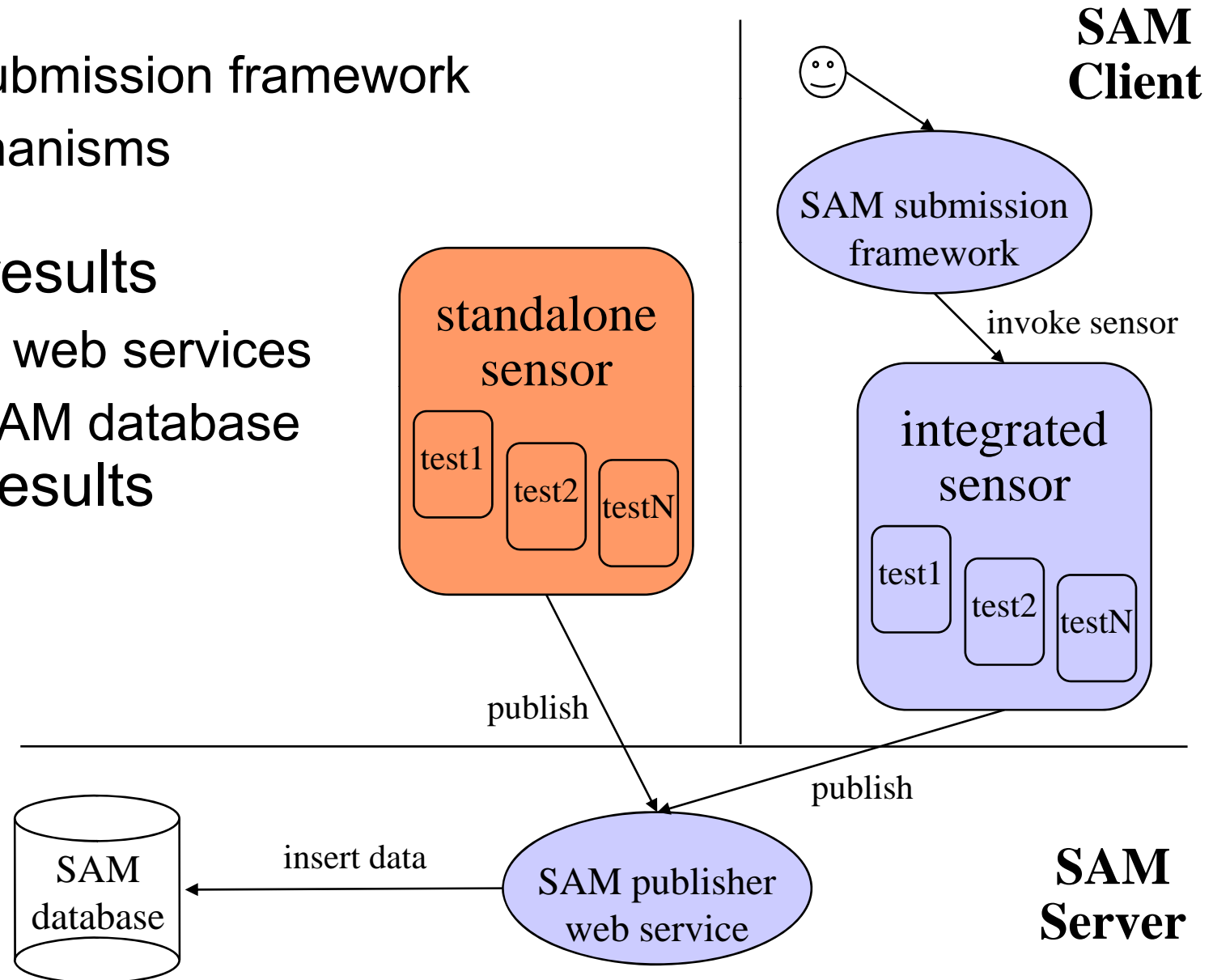
- integrated sensors
  - CE, gCE
  - SE, SRM
  - LFC
  - FTS
  - VOBOX
  - VOMS
  - MyProxy
  - host-cert
  - (JobWrapper)

- standalone sensors
  - Gstat
  - RB
  - VOBOX (alice)

Integrated sensors – CE, gCE I.

- Job submission
  - testing UI→RB/WMS→CE/gCE→WN chain
    - errors may occure on any level
  - job submission failure → job logging info returned
- Replica Management
  - WN → default SE
  - 3rd- party replication
    - default SE → central SAM SE (CERN)
- CA certificate check (WN!)
  - new CA certificates released by EUGridPMA
    - SAM + middleware repository: immediate update
    - sites have 7 days to upgrade

Integrated sensors – CE, gCE II.

- Software version check
- UNIX shell
  - bash + csh
  - environment variables
- RGMA
  - insert + read back data

- **all tests above executed on site!**

Integrated sensors – SE, SRM, LFC, VOBOX, etc.

- ## SE, SRM
  - same tests for both
  - file replication there and back (and deleted after)
- ## LFC
  - directory listing
  - directory creation for the VO
- ## VOBOX
  - `gsissh` test
- ## VOMS, MyProxy
  - only host-cert ("ping")

- check if FTS endpoint is correctly published in BDII
- listing channels
  - ChannelManagement service
- transfer test
  - N-N transfer jobs following the VO use cases
    - tested T0 → all T1s (outgoing)
    - tested T1 ← other T1s (incoming)
  - checking the status of jobs
  - using pre-defined static list of SRM endpoints
  - Note: this test is relying on SRM availability

Integrated sensors - host-cert

- multiple services
  - CE, gCE, SE, SRM, LFC, FTS, RB, VOMS, MyProxy, RGMA
- is the host certificate valid
- alarm raised after certificate expired
  - future: alarm raised 1 week before expiration

Standalone sensors

- ## Gstat (Sinica)
  - ### top-level BDII
    - accessibility (response time)
    - reliability of data (number of entries)
  - ### site BDII
    - accessibility (response time)
    - sanity checks (partial Glue Schema validation)
  - ### CE
    - free- and total nubmer of CPUs
    - number of waiting- and running jobs
  - ### SE
    - used- and available storage capacity

- ## RB (RAL)
  - ### job submission
    - "important" RBs are tested using "reliable" CEs
  - ### measuring time of matchmaking

Integrated sensors - JobWrapper I.

- **requested by experiments**
  - motivation: SAM jobs might not reach all Wns
    - → broken WN not detected
- **simplified set of tests**
- **execution by CE wrapper script with every GRID job**
  - → all Wns reached
- **test results**
  - passed to the job
  - stored in SAM DB
    - SAM publishing web service
  - published RGMA
- **installation**
  - part of middleware release
    - modified CE wrapper scripts
  - signed tarball on software area
    - tests

Integrated sensors - JobWrapper II.

- operations
  - infrastructure description with unique identification of WNs
    - relation between batch queues & WNs
    - detection of monitoring queues pointing to "carefullly" selected WNs
    - no double counting of WNs that belong to shared batch farms
  - detection of sites with broken WNs
    - basic fabric monitoring for small sites
- status
  - wrapper script: released *production*
    - *BUT disabled due to RGMA problems*
  - tarball with tests: *to be installed*
  - *visualization tools: to be developed*

Open issues

- missing sensors
  - WMS, MyProxy
    - coordinated by TIC Team
  - VOMS
    - currently: only host-cert ("ping")
    - standalone sensor by VOMS developers: *to be integrated*
    - *analysis: what else is needed?*
  - *Tier1 DB*
    - *CERN DB Team*
  - *RGMA Registry*
    - *being developed at RAL*
- *adopting Standard Probe Format*

Last slide

Thanx for your attention!