FECOS

Matej Šekoranja   *matej.sekoranja@cosylab.com*

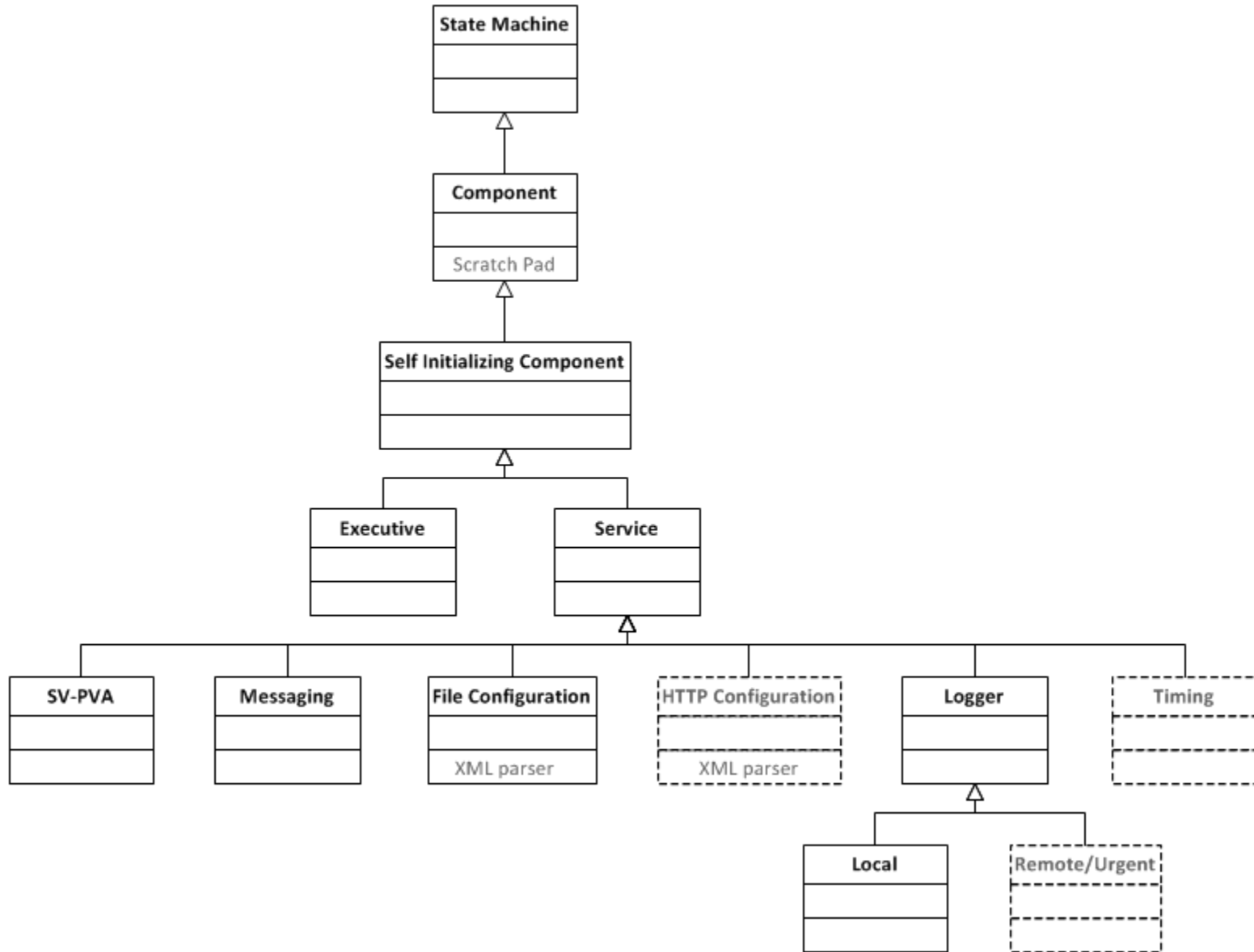Miha Vitorovič   *miha.vitorovic@cosylab.com*

the   best   people   make   cosylab

What is FECOS?

- **F**ront**E**nd **Co**ntrol **S**ystem

- A LabVIEW object oriented framework running on all FECs
    - Uniform and transparent network communication
    - Uniform operation (state machine)
    - Standard services (logging, timing, configuration, etc.)

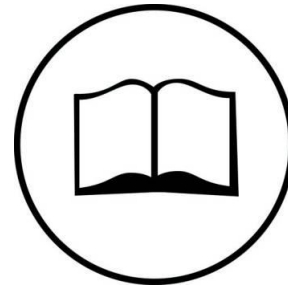- Each FEC will be able to run multiple applications – FECOS components

Progress overview

- Component
  - base object implementing general state machine and priority
- Executive
  - main system component
  - all other components must register with it
- Messaging
  - OPC (through NI shared variable engine)
  - DIM
- Error reporting and logging
  - different local (to file) logging strategies
  - localization

Progress overview

- **SV direct access methods**
- **Simple monitor handling for components**
  - no need to worry about events, simply handle value changes
- **Numerous improvements and bug fixes**

- **FECOS User Manual**

To Be Done

- Remote logging
- XML parsing
- Dynamic component instantiation
- Scratchpad
- STM
  - Replacement for DIM
- Improving development experience

XML parsing

- Configuration mainly in XML form

- LV XML DOM parsing is not available on RT targets
  - only for XML with fixed schema to/from cluster

- Need to implement a simple DOM XML parser on our own
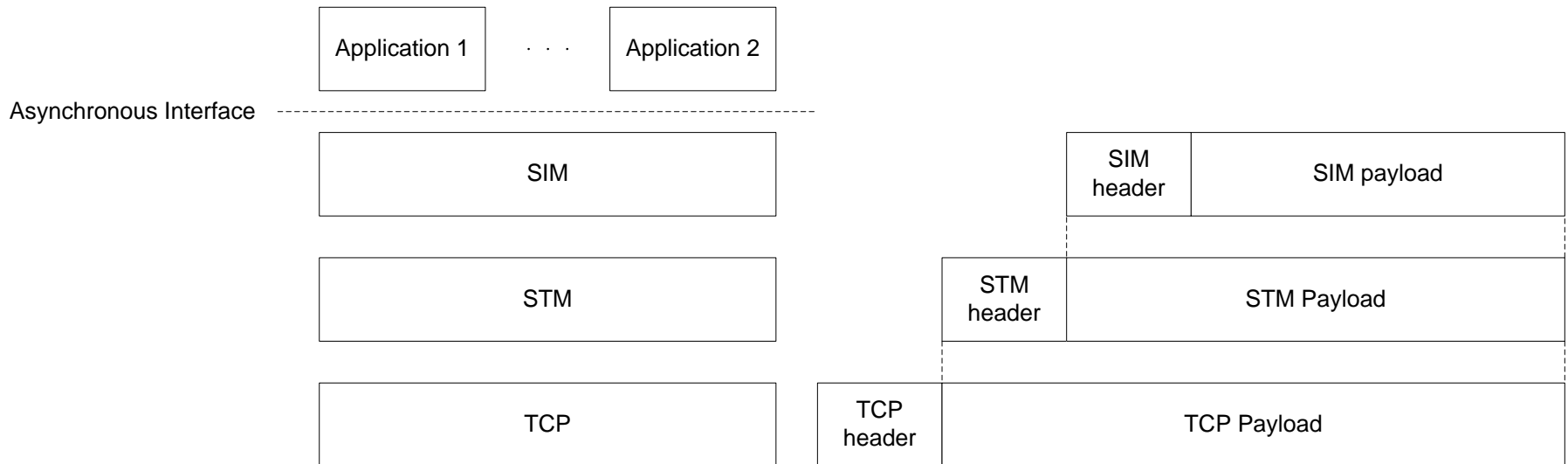
Dynamic Component instantiation

- Active components are listed in device configuration
- Executive parses the configuration, loads and starts the required components

Scratchpad

- Cycle-depended CCV (Current Control Value) is a part of static device configuration
  - (cycle mask, cycle filter, value) table

- Scratchpad allows dynamic reconfiguration CD CCVs
  - Special GUI in the PVSS
  - ***Not available in clinical and QA mode***

- Scratchpad archive will be available (by PVSS)

STM-based protocol

- **Problems with DIM on LV RT**
- **Need for a new communication protocol for:**
  - □ BDCS <-> VAA <-> MTS
- **STM (NI LV Simple TCP Messaging)**
  - □ a tiny layer above TCP
  - □ native support on LV RT

| Application 1 | · · · | Application 2 |

Asynchronous Interface

SIM		SIM header	SIM payload
STM		STM header	STM Payload
TCP		TCP header	TCP Payload

Improving development experience

- Easier, automatic installation/update of FECOS
- Creation of FECOS icon palettes
- Scripting of repeatable tasks
  - e.g. creation of new classes

Roadmap

- Preview release – Oct. 2010
  - API mostly stabilized – no major changes foreseen
- Beta release – Dec. 2010
  - Final API
- Final release