A tool to mass configure NAT MCHs

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Outline

- What MicroTCA Carrier Hub (MCH) Is, Why We Need Is
- Workflow for A Single MTCA Configuration
- What to do when we need to deploy a lot of crates
- MCH Tool Architecture
- Live Demo
- Outlook
- Questions, Comments

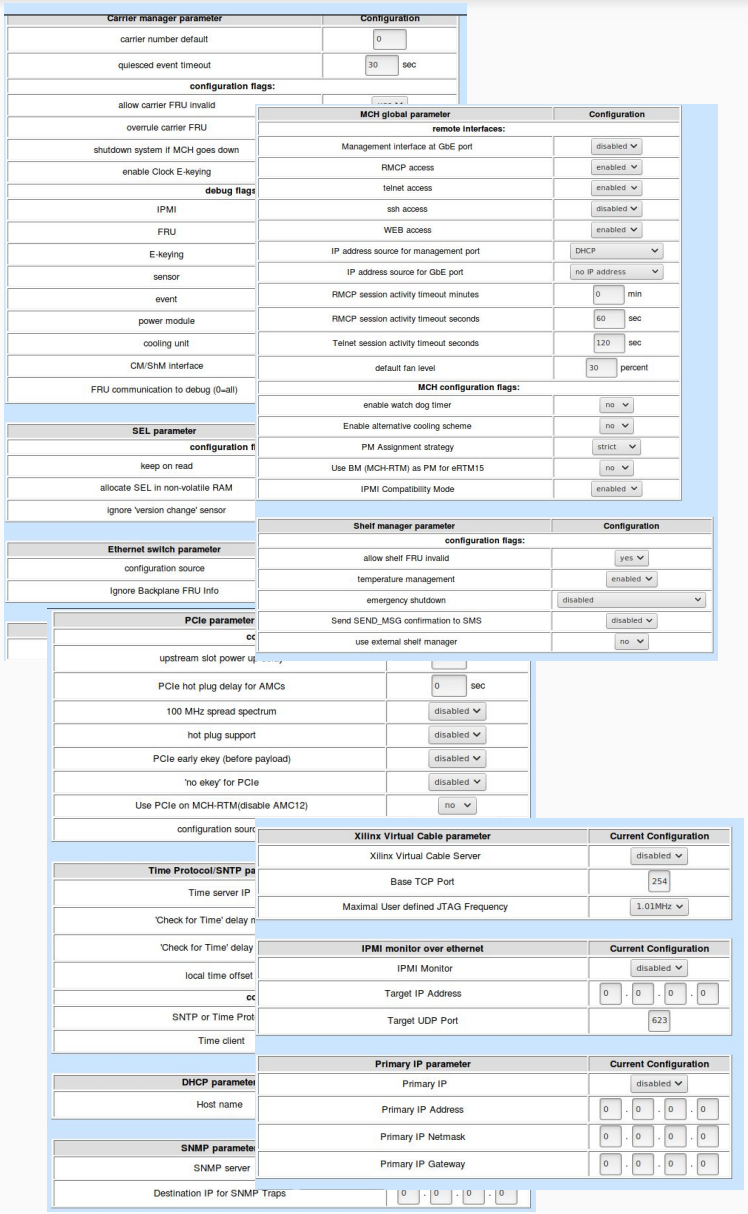
What MicroTCA Carrier Hub (MCH) Is, Why We Need Is

- The MCH is the **heart** of a uTCA crate : It provides the central management and data switching entity for a MicroTCA system and as such comprises of a base module and numerous optional daughter cards, which can be mounted on the base module.
  - Clock generation and distribution
  - Ethernet Switches
  - PCI Express Switch
  - Management : power, cooling, and communications between AMCs.

- It gives us too many degree of freedom to select what we want to use with MTCA system configuration.

- A proper configuration is mandatory in order to enable all the needed functionalities and performance.

What MicroTCA Carrier Hub (MCH) Is, Why We Need Is



- It provides three options
  - Console (USB, RS232 or Telnet)
  - Script File
  - Web browser
- However, one needs all of them, NONE of each one can configure NAT MCH correctly.
- Basic options (around 70) in Web interface should be properly and consistently answered.
- the external debug connection and firmware update are mandatory
- In addition, several hundreds MTCA system which we have to deploy in near soooooon.
- In terms of configuration management, we have to track down its configuration carefully.

Workflow for A Single MTCA Configuration

- Assemble MTCA Crate with Power Module, and MCH
- Connect the dedicated debug cable and an ethernet cable to MCH
- Setup the MCH IP address
- Update the latest firmware through TFTP
- Setup the basic configuration
- Upload the clock configuration file
- Check its configuration
- Create the configuration report

1. *Visual inspection (LEDs):*
   a. *Cooling Unit*
   b. *Power Module*
2. *Test slots with dummy AMC board*
3. *Plug in all AMCs and check LEDs*

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How many one can do at the same time?

1. *Visual inspection (LEDs):*
   a. *Cooling Unit*
   b. *Power Module*
2. *Test slots with dummy AMC board*
3. *Plug in all AMCs and check LEDs*

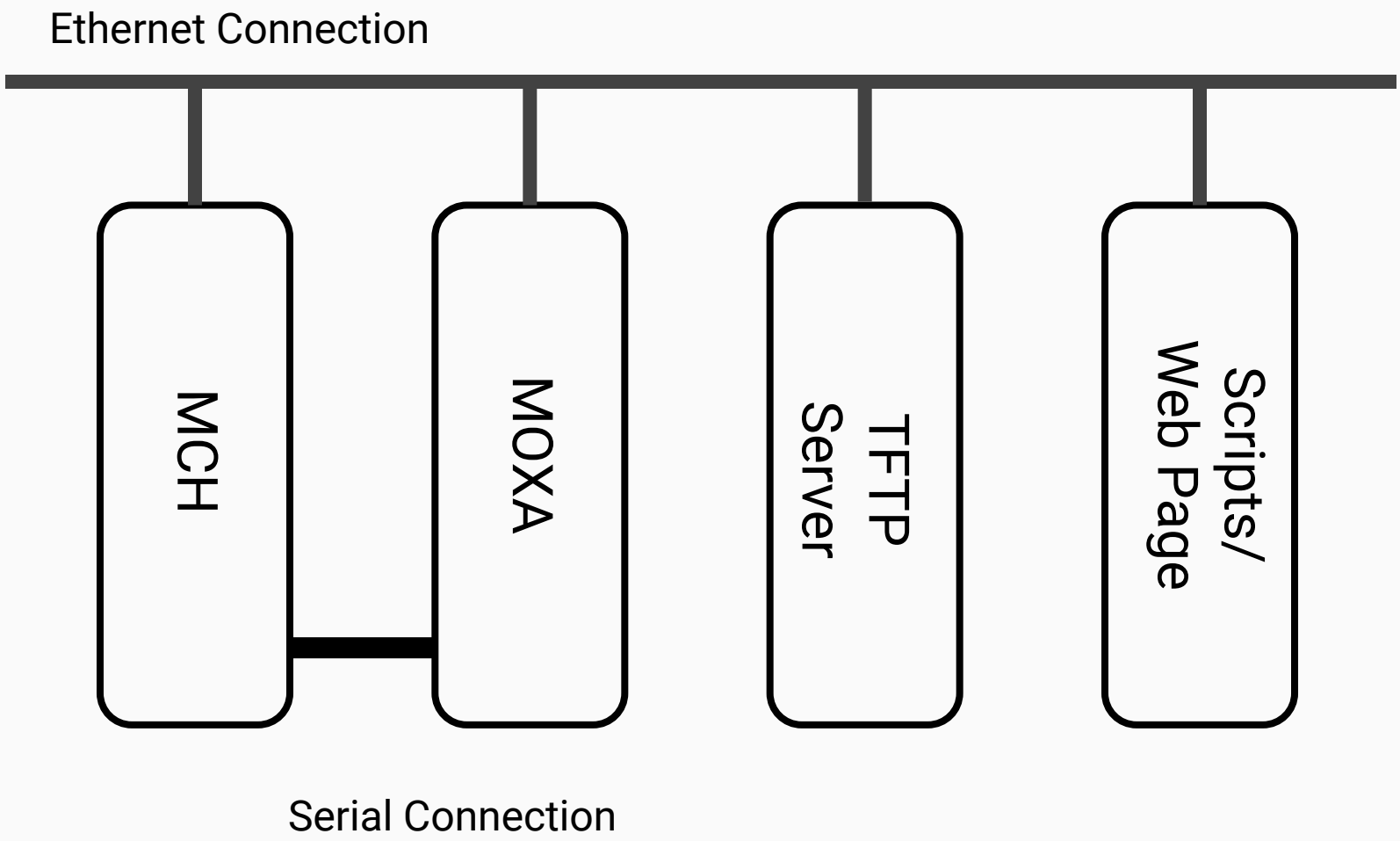
What to do when we need to deploy a lot of crates

- configuring an only crate is a little bit cumbersome:
  - There's no support to load a single file with the default config which covers all necessary values.
  - Access the web page is not always easy (first time?)
  - Command line is super annoying
  - **Even following a recipe, configuring an MCH takes time**

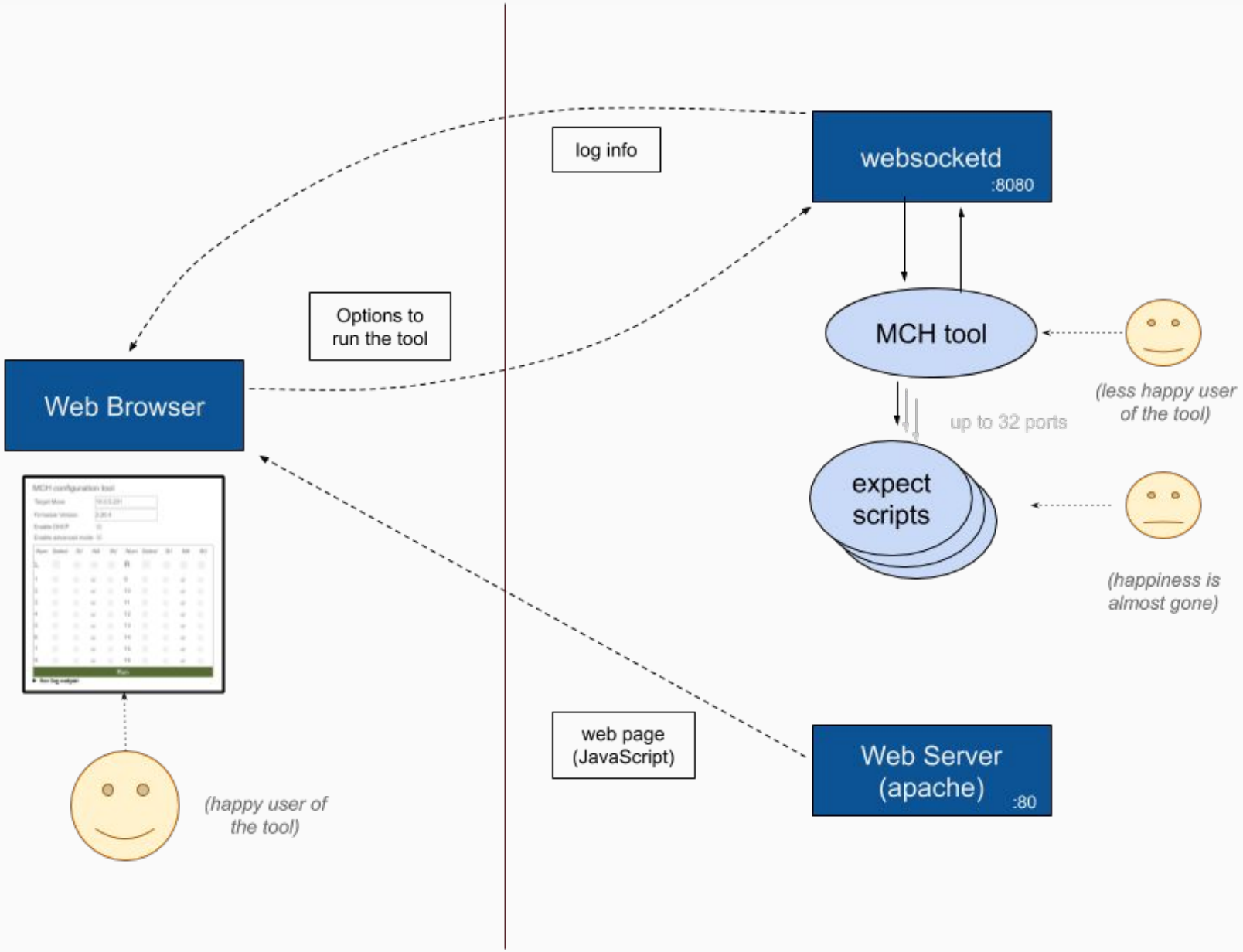
- So… if I need to deploy a lot, what happen?

we need a tool!!
(or a lot of students)

MCH Tool Architecture



MCH Tool Architecture



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http://10.0.4.189/

Live demo

Outlook

What we achieved:

- Now we save a lot of time thanks to this tool
- The interface is easy to use
- The current status is quite stable
- Now, we can configure many MCHs at the same time with a low effort
- Time/unit: from 12 to 2 (6 units)

What can be improved:

- Ease even more the user interface
- Improve log reporting
- Improve the error message reports
- Find a way to run at the same time configuration for different crate form factor.

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Questions, comments,...

https://github.com/icshwi/mch_config