AFFIRM

Quarterly Meeting

May 4, 2017

last time…

Year 3 Plans

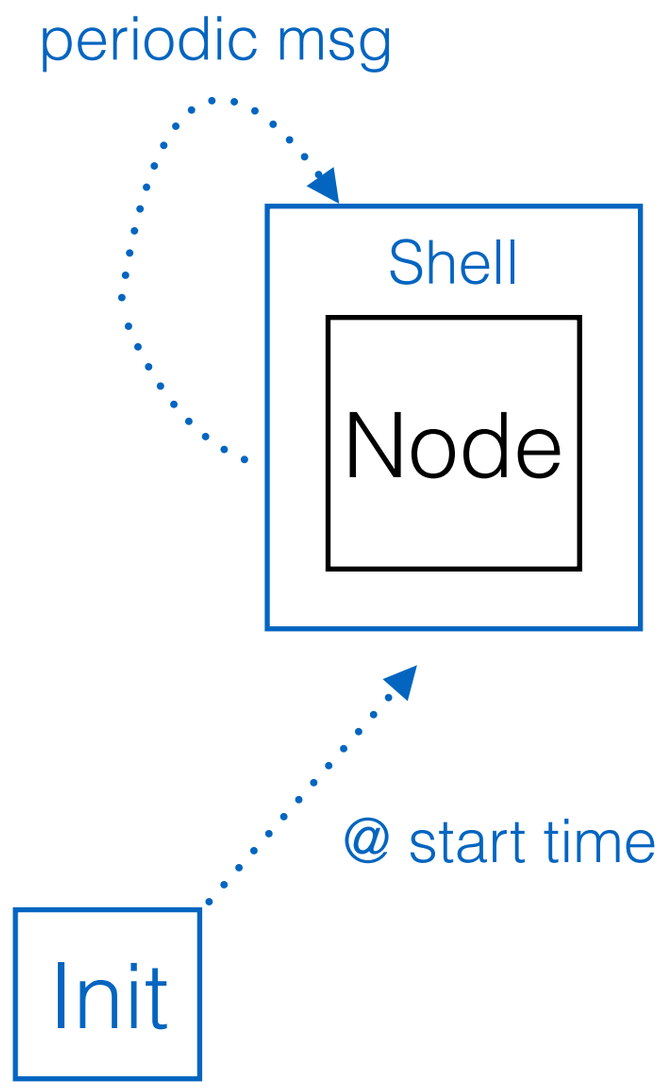
- Build a prototype SAL/Sally backend for the ADSL:
  - ✓ translation of expression language and message passing semantics
  - ✓ configurable hybrid fault model
  - ✓ generation of framework specific lemmas (e.g. calendar lemmas)
    - specification of properties
    - generation of observers and abstract state machines
- Specify our case studies in terms of the prototype ADSL and translator
  - ✓ OM(1)
  - ✓ WBS
    - Multi-level system: BRAIN, TTE, ...

Progress this Quarter

- To support the WBS case study, we've developed a clock primitive in the ADSL

- The clock primitive takes a node and a (period, start time) pair and produces a new node that executes on the period

- This required only one new internal function, which is useful in its own right



Progress this Quarter

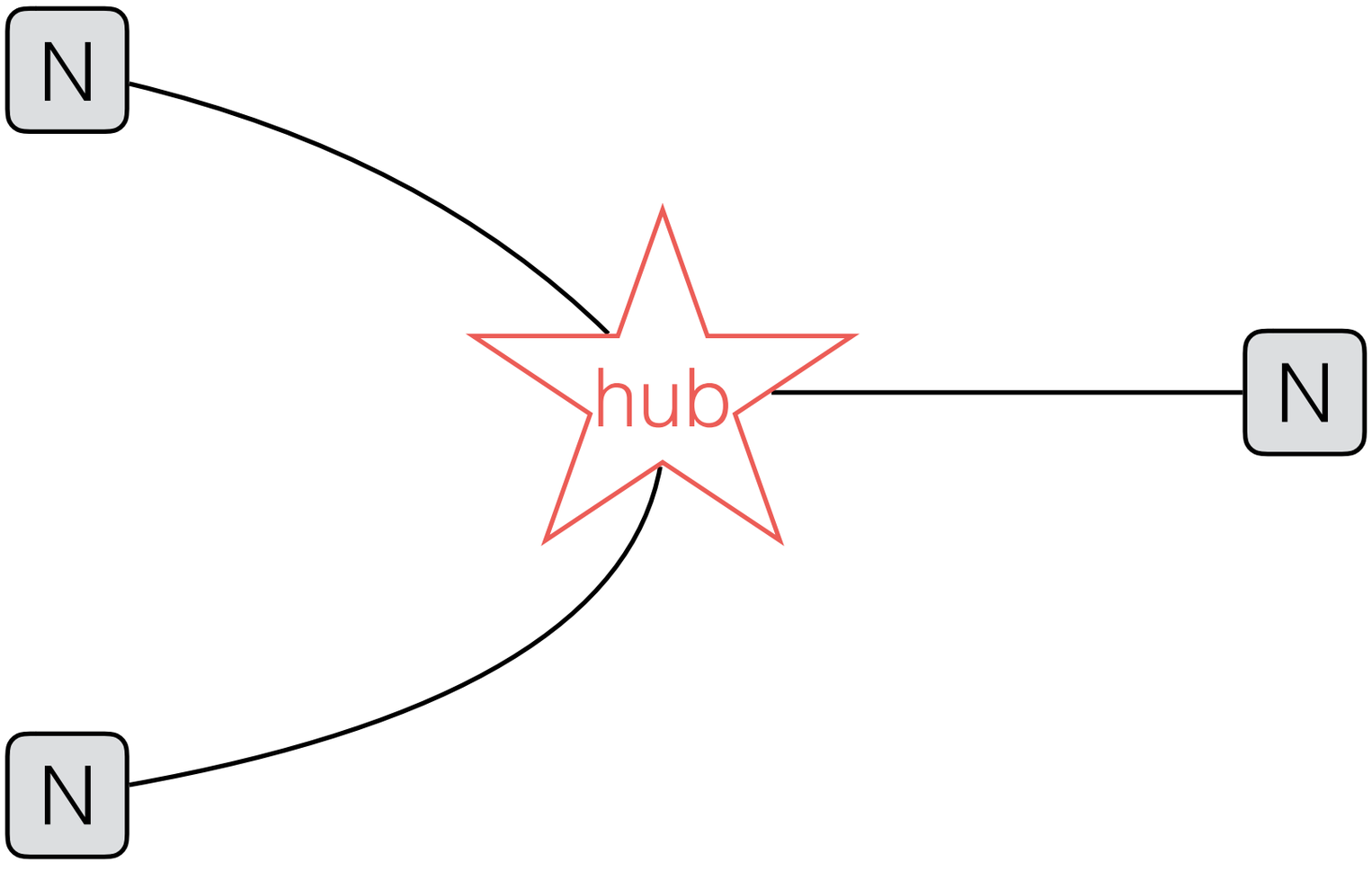
- To support the “multi-level” case studies, we developed library functions allowing the user to easily instantiate various low-level network fabrics in a specification.

- The library functions are modular: the structures they produce can be inserted anywhere a simple, direct, network channel would fit.

- The library functions are constructed directly from the ADSL primitives, without any need to access the internals of the language.

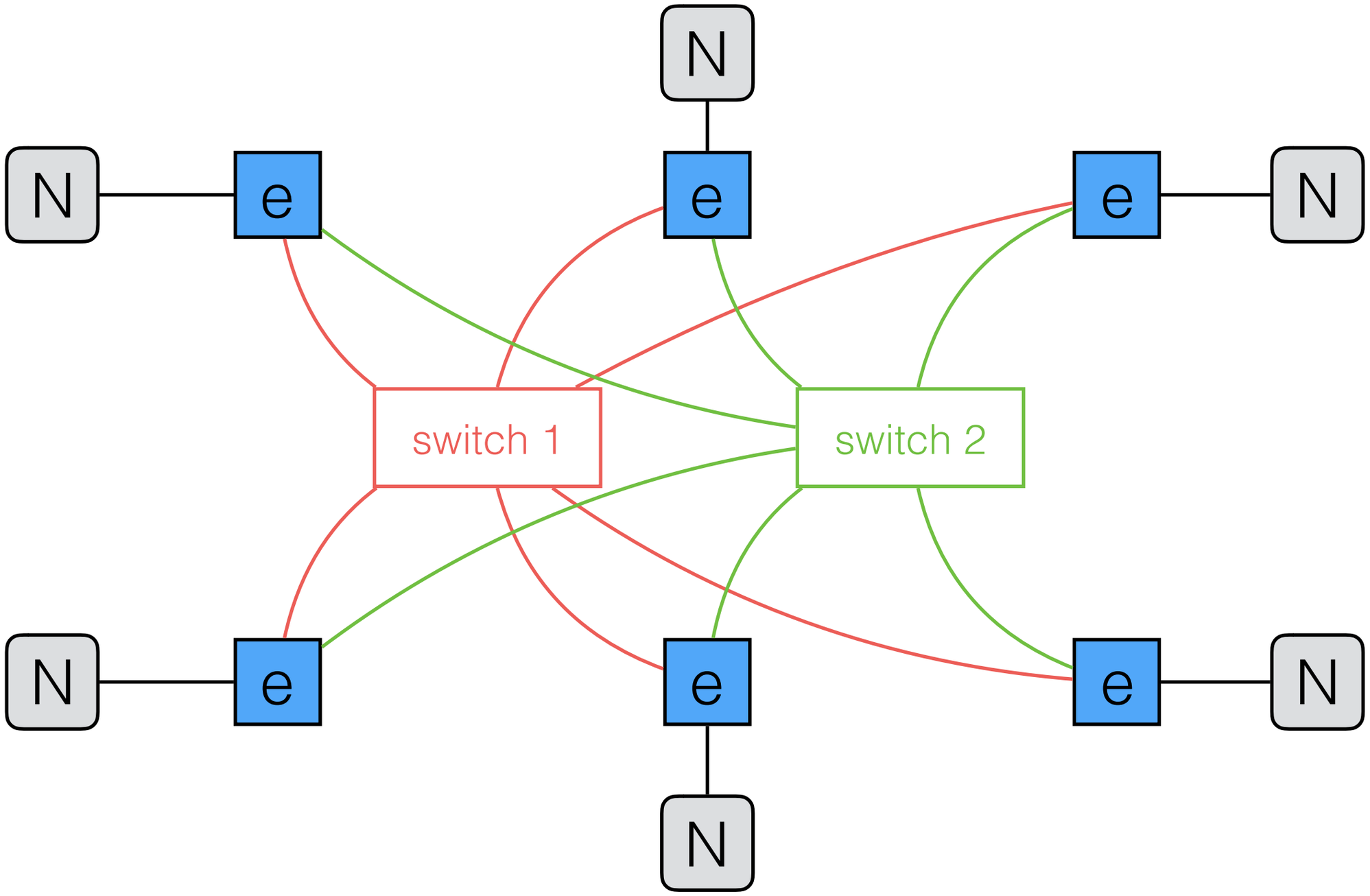
Progress this Quarter

Star bus interconnect



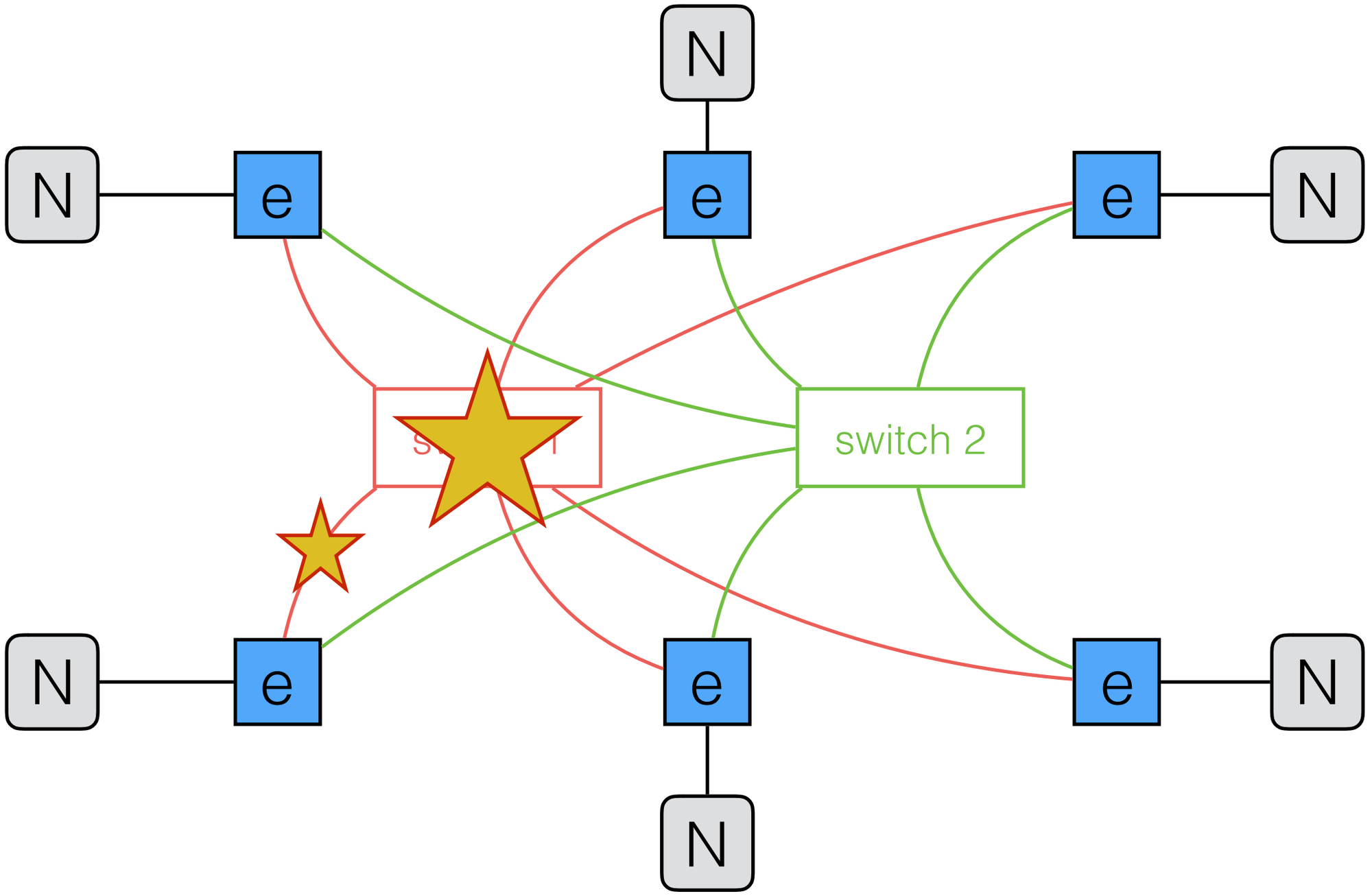
Progress this Quarter

Redundant Switched Ethernet



Progress this Quarter

Redundant Switched Ethernet



Final Quarter

- Continue to refine our case studies in the ADSL, including <u>property verification:</u>
    - WBS
        - Multi-level system: TDMA, BRAIN
- Put finishing touches on the ADSL
- Focus on a journal paper detailing results of AFFIRM
- Prepare the final report and presentation