WP 2: Experimentation

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mami

measurement and architecture for a middleboxed internet

measurement | architecture | experimentation

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Agenda

- Overview
- Classification
- Modeling
- Publications
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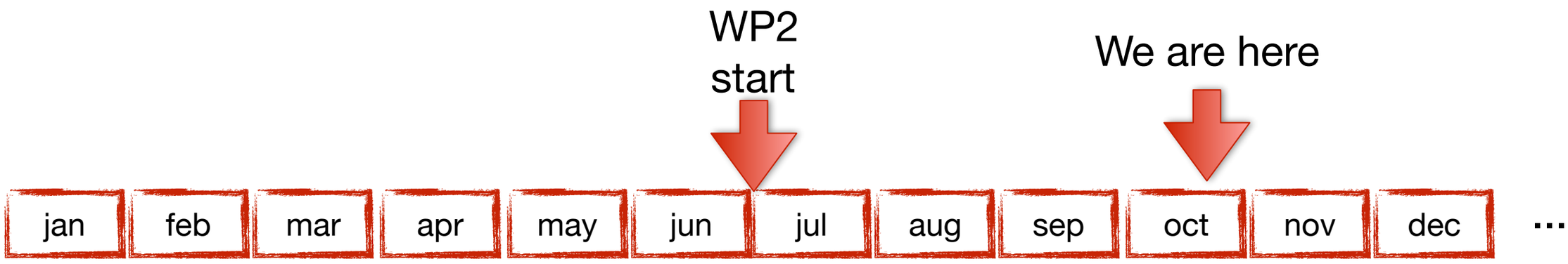
Overview - Goals

- Usage of data collected in WP1
  - middlebox classification
  - middlebox modeling
- NFV-based experimentation
  - evaluation of the MAMI approach applicability to the selected use cases

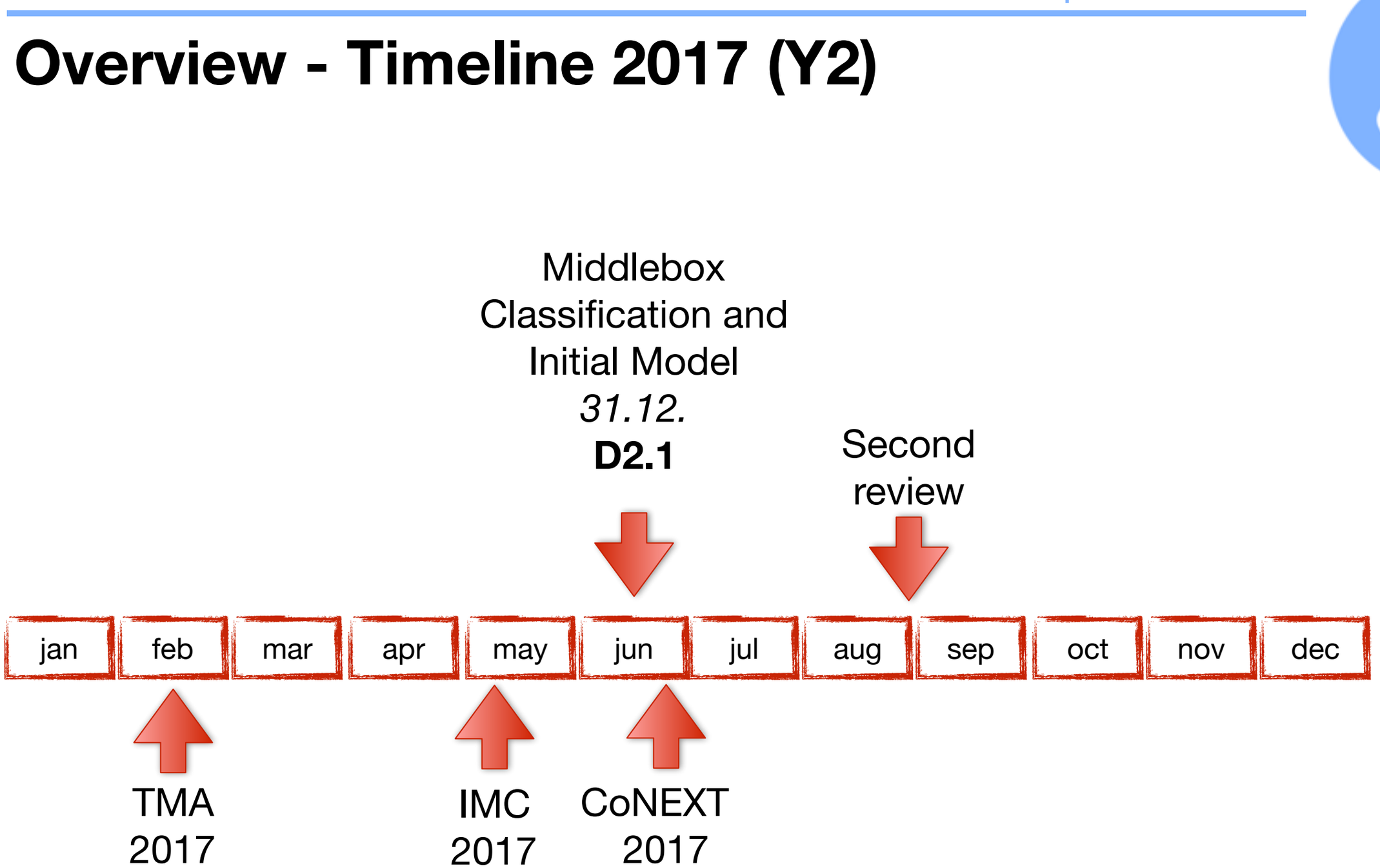
Overview - What are we doing?

- Middlebox classification [2.1, in progress]
  - path-impairment oriented middlebox policy taxonomy
- Middlebox Modeling [2.2, in progress]
  - modeling middleboxes based on their classification
    - lessons learned from measurements (cfr. WP1)
    - longitudinal behavior of middleboxes
  - implementing the model in a simulator
- Experimentation
  - NFV-based experimentation [2.3, from January 2017]
  - testbed-based validation of approach [2.4, from January 2017]

Overview - Timeline 2016 (Y1)



Overview - Timeline 2017 (Y2)



Overview - Who does what?

so far, this is ongoing

Partner	MM	Task 2.1 Middlebox Classification	Task 2.2 Middlebox Modeling	Task 2.3 NFV-based Experimentation	Task 2.4 Validation of Approach
ETH	6			✓	✓
ULg	20	✓	✓		
UoA	6	✓			✓
TID	10		✓	✓	
SRL	5	✓			✓

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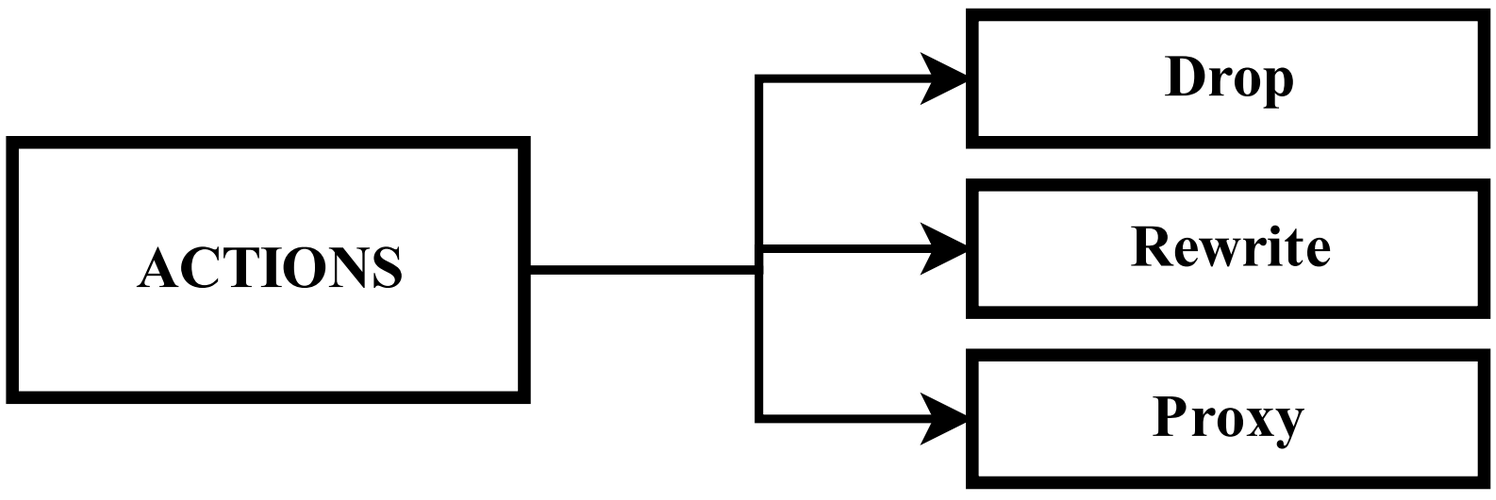
Classification - Overview

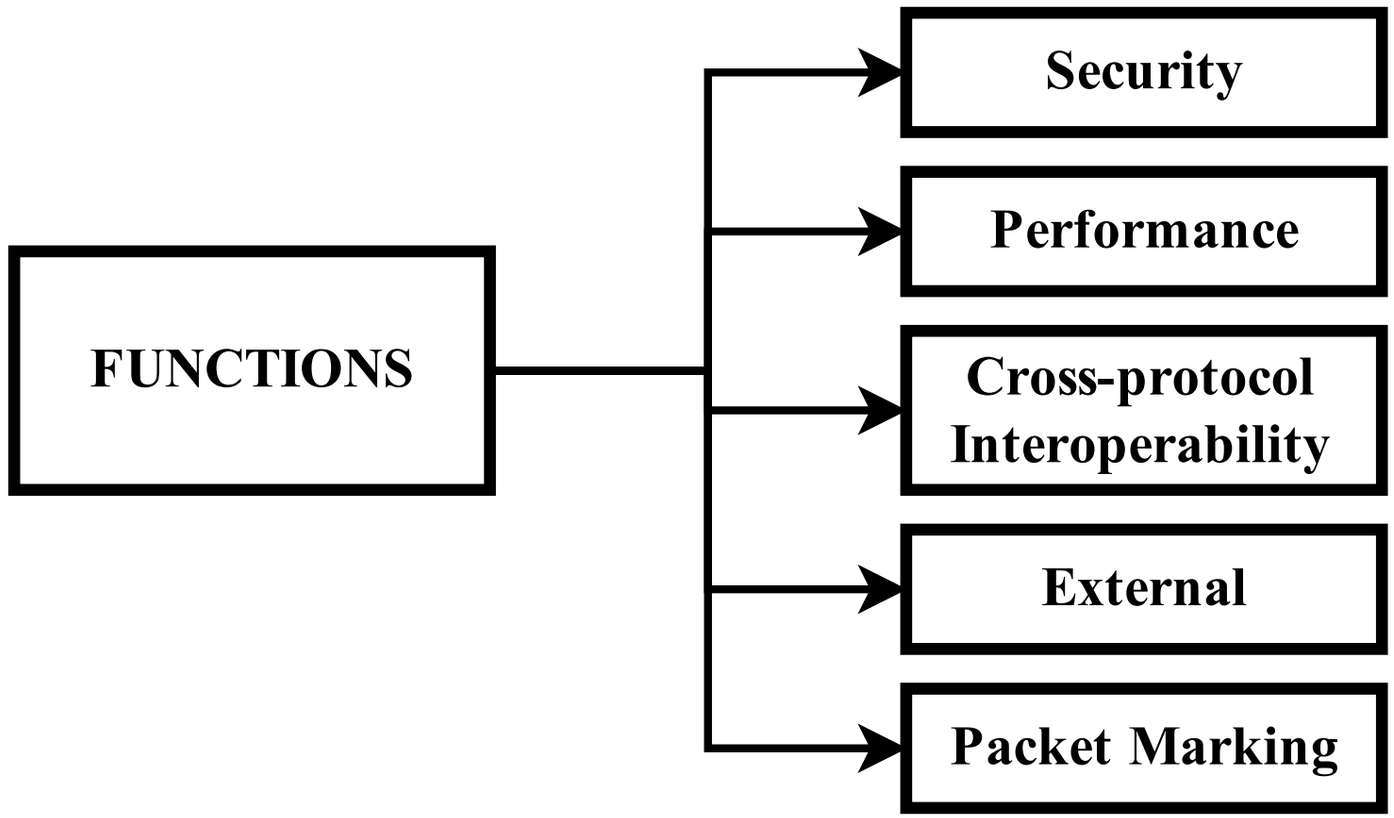
- Path-impairment oriented middlebox policy taxonomy
  - categorizes the initial purpose of middlebox policy
  - categorizes middlebox' potential unexpected complications
- 3 main categories
  - *action*
    - the fate of a packet crossing a middlebox implementing this policy
  - *function*
    - the policy purpose
  - *complication*
    - the possible resulting path deterioration

Classification - Action

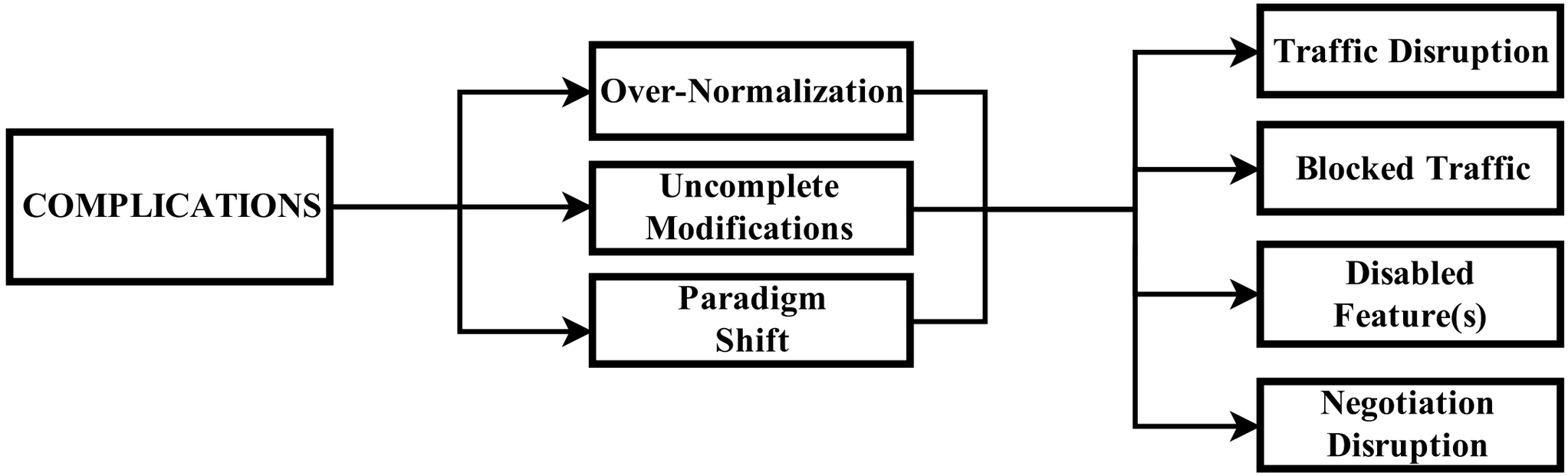
- Action



Classification - Functions



Classification - Complications



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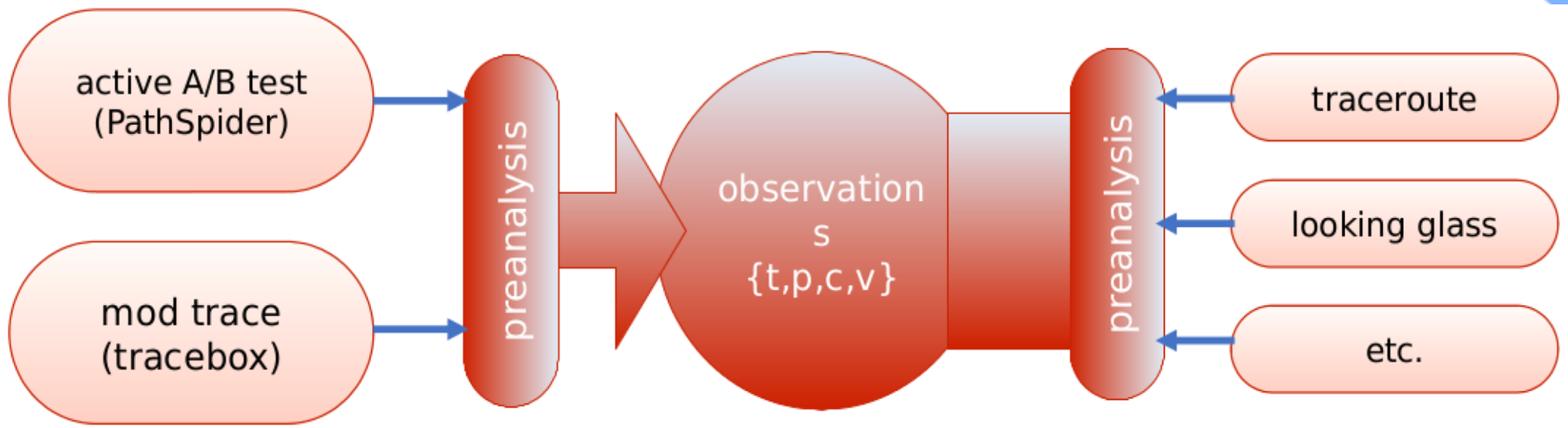
Modeling - Based on measurement data



- C
- cc
- **t**:
- **p**: path to which observation applies
- **c**: condition observed (e.g., "function X ⇒ packet loss")
- **v**: vector of condition-specific values

Modeling - Extension

- Extend this with
  - persistence (i.e., temporal aspects)
  - positioning (i.e., location on the path)

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Publications

- Publications are planned in the near future (Year 2)
  - middleboxes persistence
  - classification/modeling

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Conclusion

- Progress has been done, since the beginning of the work package, on all front lines
  - basic classification
  - we are starting the modeling part
- Deliverable 2.1 (middlebox classification and initial model) will be provided on time
  - M18 (June 2017)

Conclusion - Next steps

- Short term (end of 2016)
  - longitudinal analysis of middleboxes behavior
- Mid term (early 2017)
  - starting the simulator implementation
  - testing and initial experimentation of the MCP prototype