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Autonomicity IS a property

Autonomicity Communications Roadmap

WAC 2005 Panel

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Dissecting Autonomicity

- Autonomic is by definition self-centric
- It revolves around an intelligent control loop
  - Collect – Decide – Enforce
- Collect = Monitoring
  - Building a picture about the network, i.e. self-aware
- Decide = Inference & Plan
  - Inference is the process whereby a problem is diagnosed
  - Plan is the process whereby a solution is selected
- Enforce = Deployment & Configuration
  - Functionality is added
  - Behaviours are changed
- Evolution in the making
  - A distributed, adaptive, global system that is continuously changing

What are the binding elements behind all this?

- Autonomicity gives rise to an abstract vision which is meaningless unless it is transformed into tangible universal **scenarios** that concretises the vision
  - Reduces confusion and avoids rediscovery-of-the-wheel syndrome
- The autonomic loop is lifeless without the existence of **semantic** "languages" exchanged between the different entities of the loop operating at different layers and different contexts
  - This amounts to a huge modelling task in many layers and contexts
  - Such semantic languages will collectively describe behaviours and create a sense of purpose
- **Components**, everywhere and of every type to enable network evolution
  - Components act as building blocks to compose more complex structures
  - Services and Network functionality are described as components
  - They need a "language" to bring them to life

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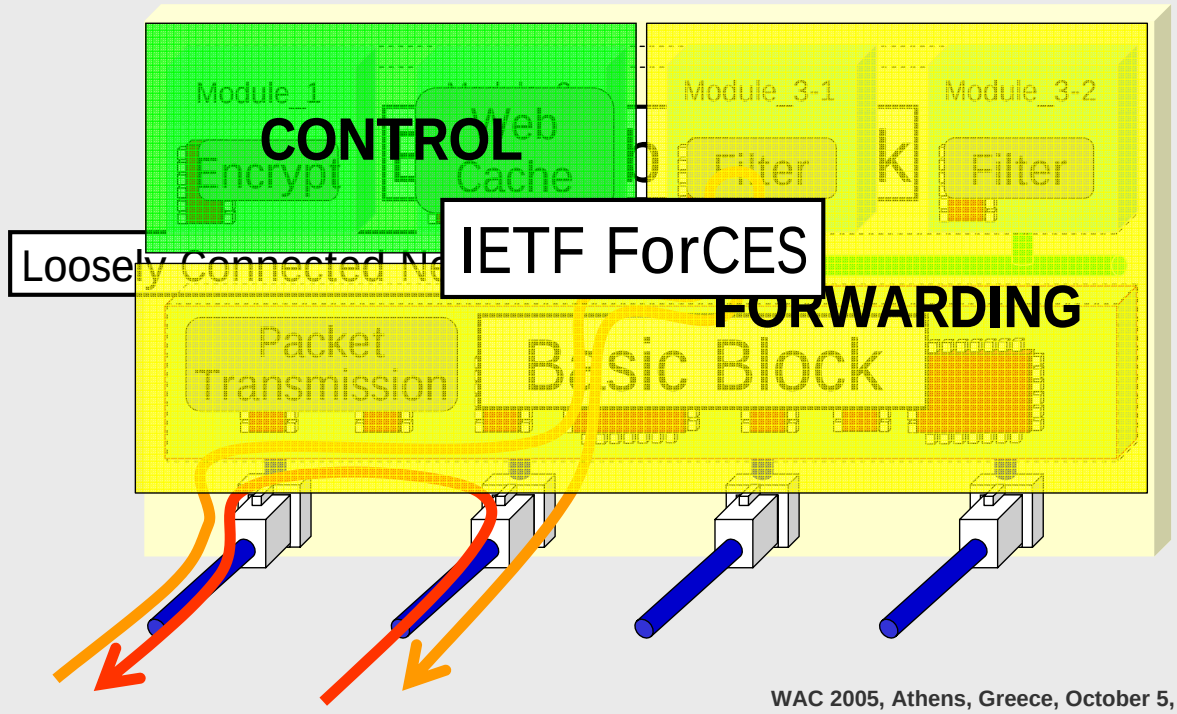
Modular Router Architecture

... as a specific example to support components



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ToDo List towards a Roadmap

- Based on the premise that Autonomicity is rather a property manifesting itself in conjunction with the application domain, we need,
  - Select characteristic application domains with representative scenario(s) that describe autonomicity in tangible ways
  - Select existing functionality that can be transformed into an autonomic one
  - Define/Select the abstractions –still elusive- necessary for representing information and enforcing decisions (low level programmability)
    - Such abstractions become an integral part of the new languages
  - Select/define technology suitable for supporting/enabling/hosting autonomicity
    - Modular router is such an example
  - Transfer knowledge from other fields in order to build algorithms for making decisions
- I consider this as Phase 1 that can be detailed
- Phase 2 should basically aim at large scale trials and testbeds of the implemented scenarios
- Phases 3 onwards remain unknown

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THANK YOU!

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