



NetIDE

Approaches to conflict resolution

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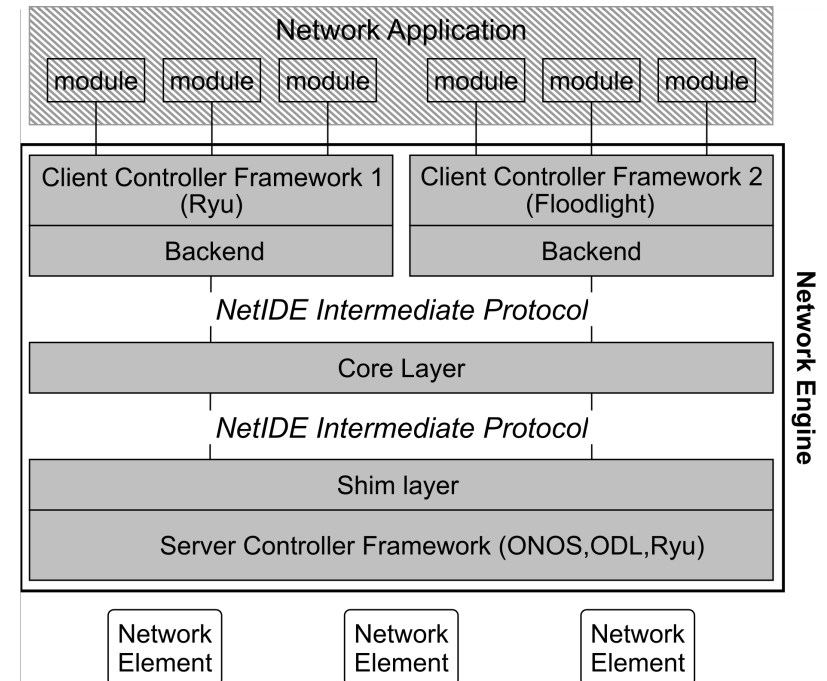
This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 619543

Background

- * Results from the NetIDE project
- * Started as OF-centric, but were extended to cover other protocols
- * Current status:
 - * OF version-oblivious architecture
 - * Extending to netconf

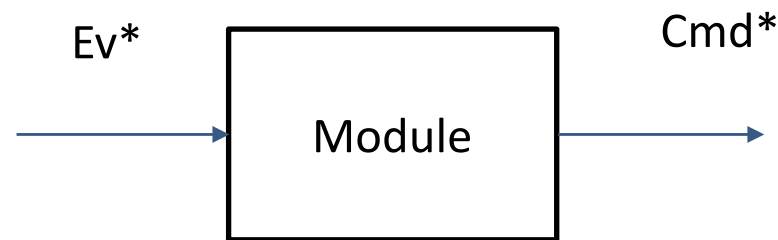
Short recap

- * NetIDE architecture
 - * Client/Server SDN controller paradigm of ONF
 - * Network Application's modules are given the runtime environment they expect in the client controller
 - * Multi-controller support (OpenDaylight, Ryu, Floodlight, ONOS, ...)



- * ONF SDN architectural concepts

The OF model



- * or should I say non-model?
- * If you ever wanted a simple model, there you are
- * Whether it is use-/meaningful is a different question

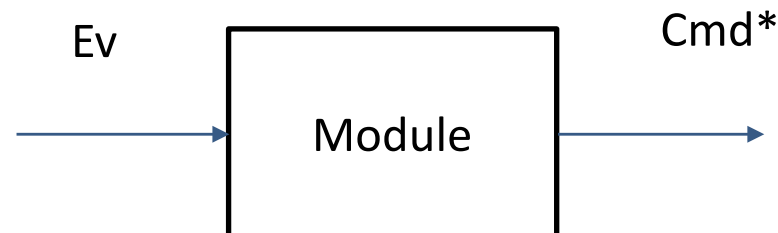
Our assumptions

- * There is no conflict against network state
- * Examples that may sound like conflict but are not:
 - * Shut down an active interface
 - * Change next hop for a given prefix
- * If the result is unwanted
 - * we face a bug in the application
 - * but the network element should not try to correct this bug

So, when can we do anything?

- * In comes the transaction concept:
 - * A network event and its resulting commands (or lack thereof) form a unit, we call *transaction*

$\{Ev, Cmd^*\}$

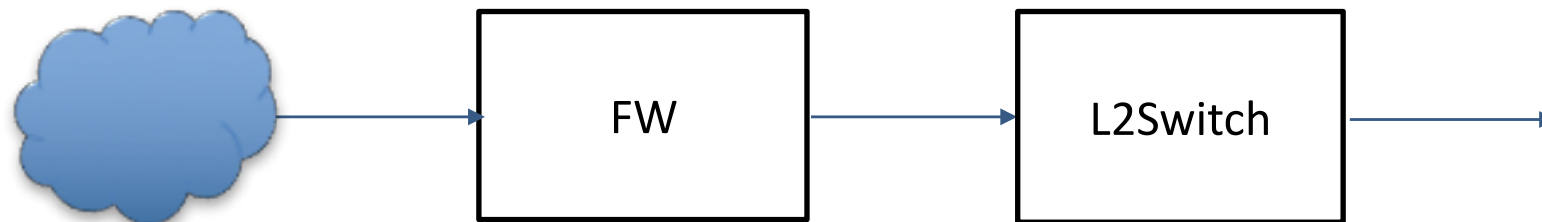


Conflicts become obvious with transactions

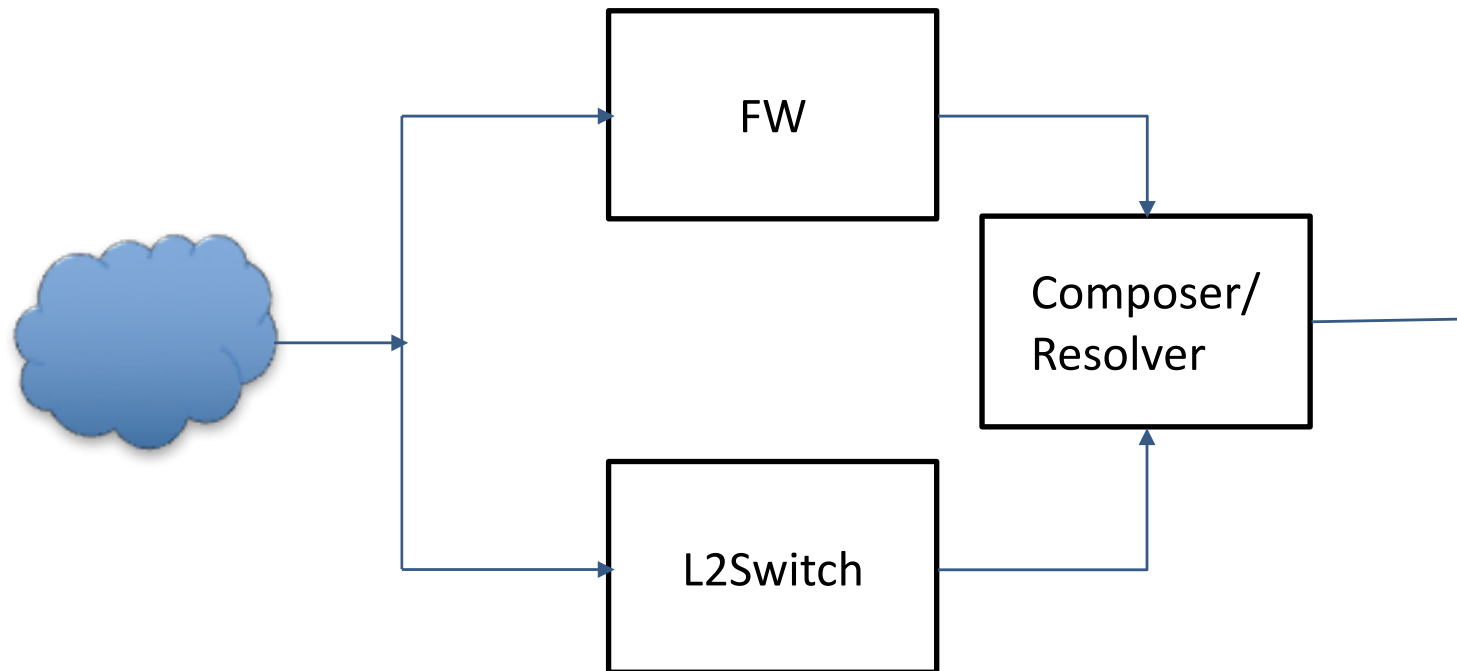
- * When two or more transactions triggered by the same event are sent to the network
 - * Conflicts are easy to detect
 - * We can start thinking about automated remedies for them

Applying the results to application composition

- * In SDN we should start thinking in other terms than stitching
- * Example: Connecting a DMZ to the Internet



Composing a stealth firewall



Next steps

- * As said before, integration of netconf
- * An attempt at pro-active applications
 - * Comamnds are not triggered by events
 - * Normally when an application is started

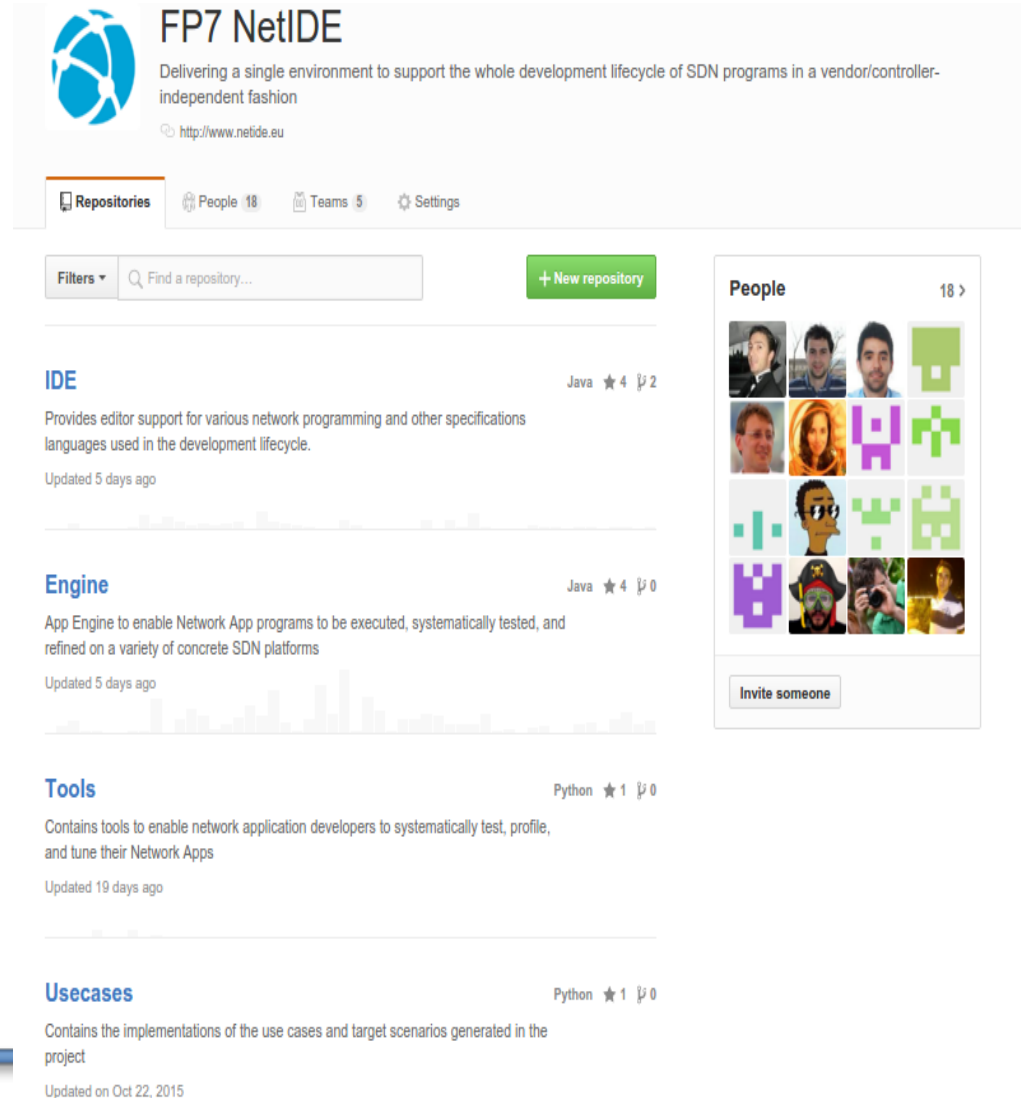
Try our code?

We assure survival of NetIDE results by contributing them to different FOSS projects

Source code of IDE, Network Engine and Tools are publicly available on Github under **Eclipse Public License v1.0**

Usecases contains implementations of target scenarios that validate the NetIDE framework.

<https://github.com/fp7-netide>



The screenshot shows the GitHub repository page for FP7 NetIDE. The repository is titled "FP7 NetIDE" and has a description: "Delivering a single environment to support the whole development lifecycle of SDN programs in a vendor/controller-independent fashion". The URL is <http://www.netide.eu>. The repository is categorized under "Repositories" and has 18 people, 5 teams, and settings. The repository is listed under the "FP7 NetIDE" organization. The repository is categorized under "Repositories" and has 18 people, 5 teams, and settings. The repository is listed under the "FP7 NetIDE" organization. The repository is categorized under "Repositories" and has 18 people, 5 teams, and settings. The repository is listed under the "FP7 NetIDE" organization.

IDE Java ★ 4 🍴 2
Provides editor support for various network programming and other specifications languages used in the development lifecycle.
Updated 5 days ago

Engine Java ★ 4 🍴 0
App Engine to enable Network App programs to be executed, systematically tested, and refined on a variety of concrete SDN platforms
Updated 5 days ago

Tools Python ★ 1 🍴 0
Contains tools to enable network application developers to systematically test, profile, and tune their Network Apps
Updated 19 days ago

Usecases Python ★ 1 🍴 0
Contains the implementations of the use cases and target scenarios generated in the project
Updated on Oct 22, 2015

People 18 >
Invite someone

ANRW'16 Paper

- * Composition of SDN applications: Options/challenges for real implementations
 - * Paper: <https://irtf.org/anrw/2016/anrw16-final24.pdf>
 - * Presentation: <https://irtf.org/anrw/2016/slides-anrw16-final24.pdf>



NetIDE

Thank you!

Questions? Reactions...



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