



*Your complimentary
use period has ended.
Thank you for using
PDF Complete.*

[Click Here to upgrade to
Unlimited Pages and Expanded Features](#)

Forces vs. ONF [March 2012]

Upcoming draft:

Draft-hares-forces-vs-openflow-
00.txt

Question

- “ Requesting Input prior to draft
- “ How does ONF Relate to ForCES?
- “ How does this help us get to devices that operate in the Cloud or strong cloud services or Software (D*) Networks
 - . D* = Defined, driven, derivated

Quotes:

- “OpenFlow-0 is the Diff-Serv Tspec, OpenFlow-1.0 is Forces--, and OpenFlow 1.1 is Forces++”
[Edward Crabbe-Jan2012]
- “ONF is really a repackaging of ForCES existing technology in an industry

Topics covered in the

- “ Goals - historically and now
- “ Architectural models
- “ Flow Logic
- “ Forwarding Models and Building Block Libraries
- “ Protocol
- “ Applications using (Firewalls, Load-balancer, High availability nodes).

Historical context

Forces History

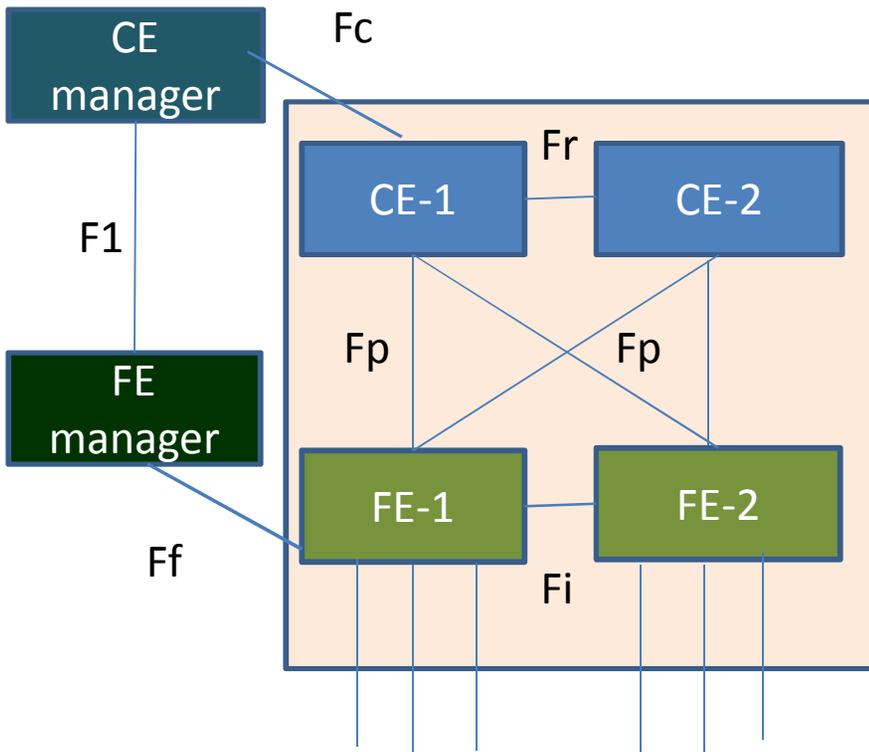
- “ Designers of Network Processors (NP) wanting commodity chips for Advanced functions
- “ NP Forum Common API to control NP
- “ Movement to IETF for open standards

ONF history

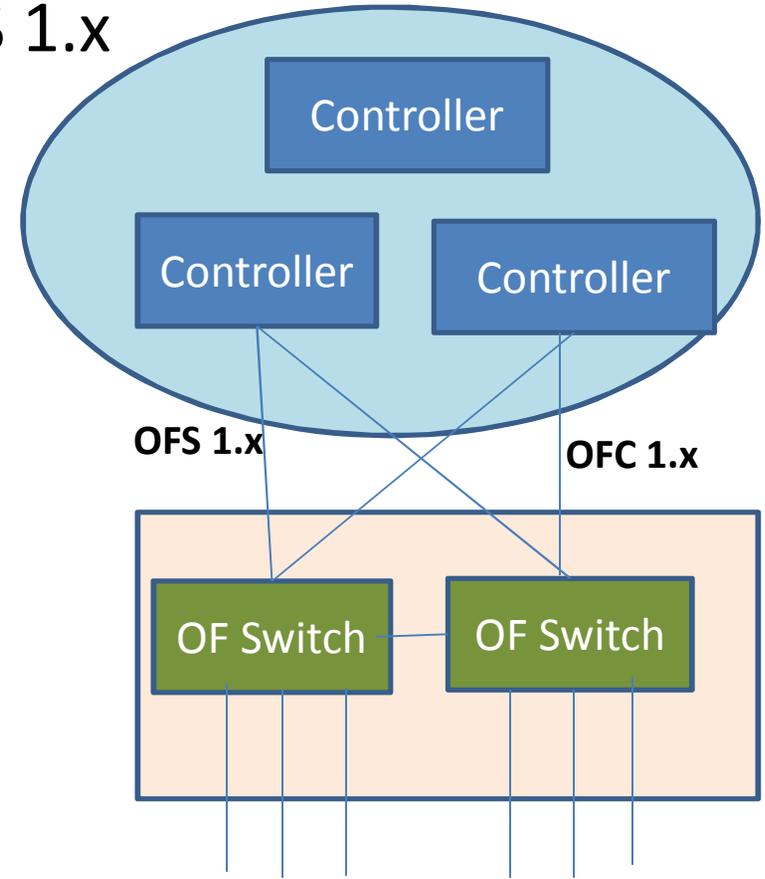
- “ Researchers looking for large scale networks to test NG (GENI)
- “ ONF – Industry Forum with open work & Industry board voting on final Standards

Architectural Models

Forces



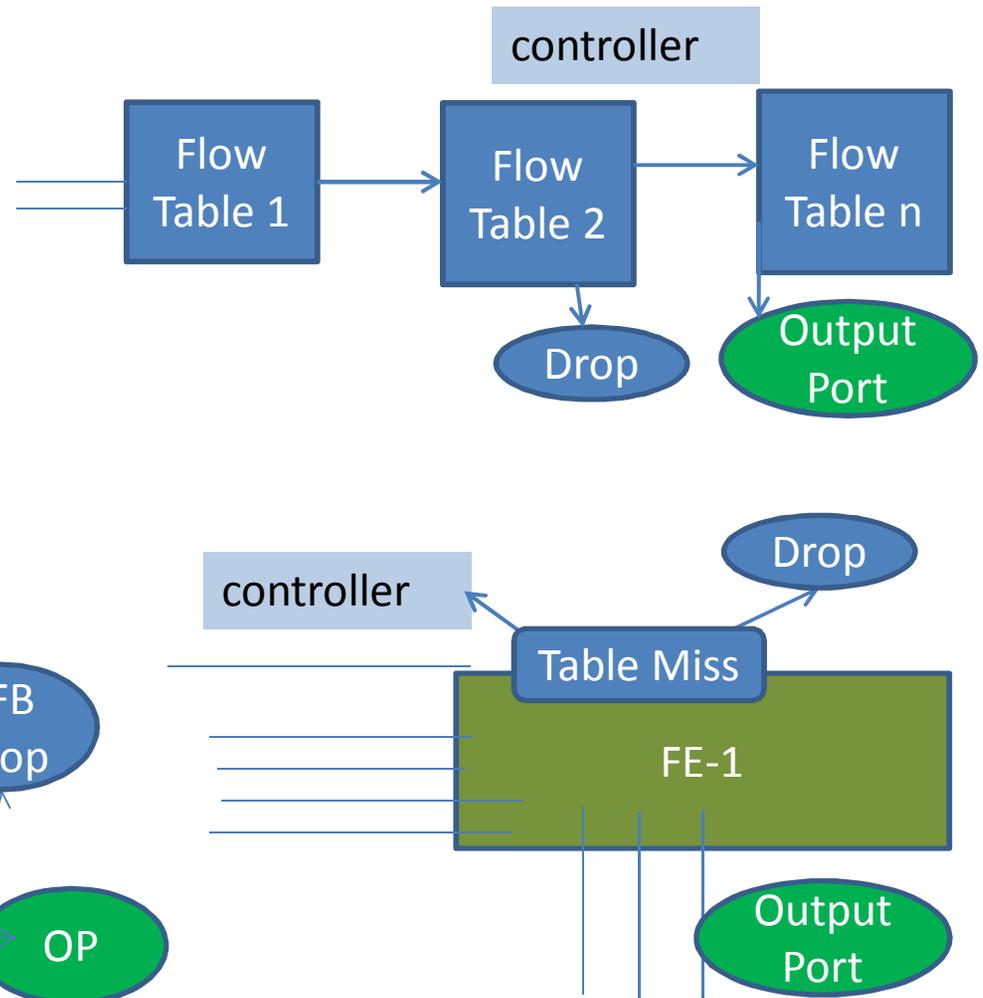
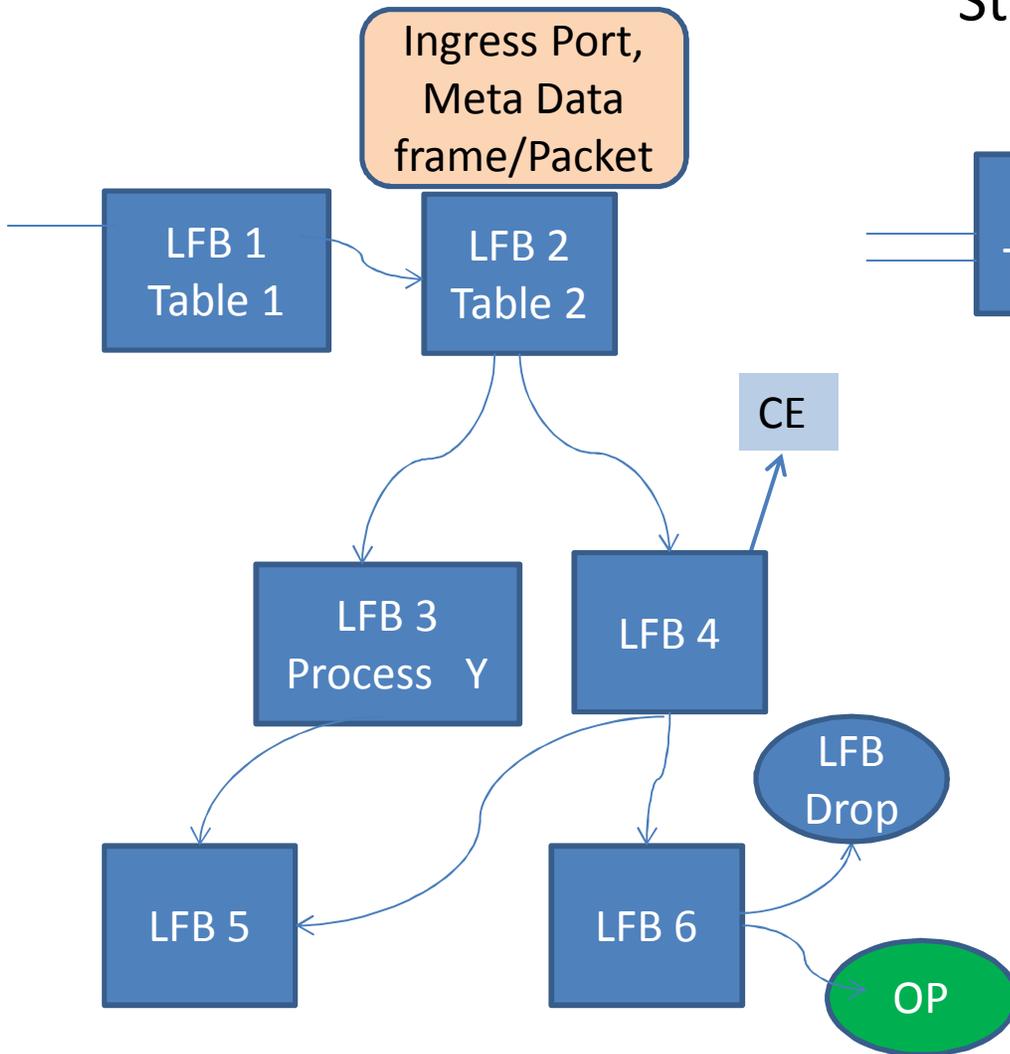
OFS 1.x



OFS does not define initialization of system

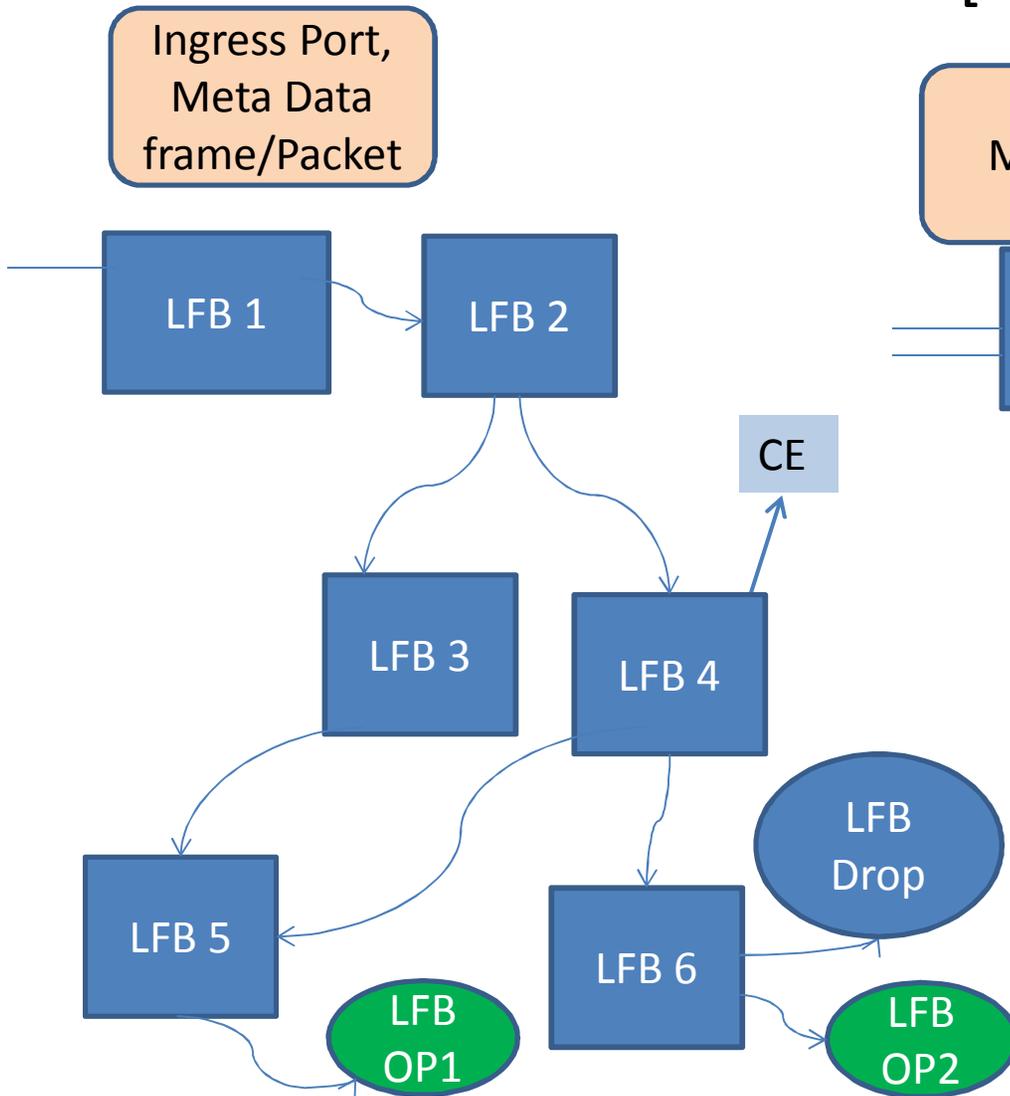
Flow Logic

“ Forces – Dynamic definition ” [McKeown2008][OFS1.0] – Static definition & protocol

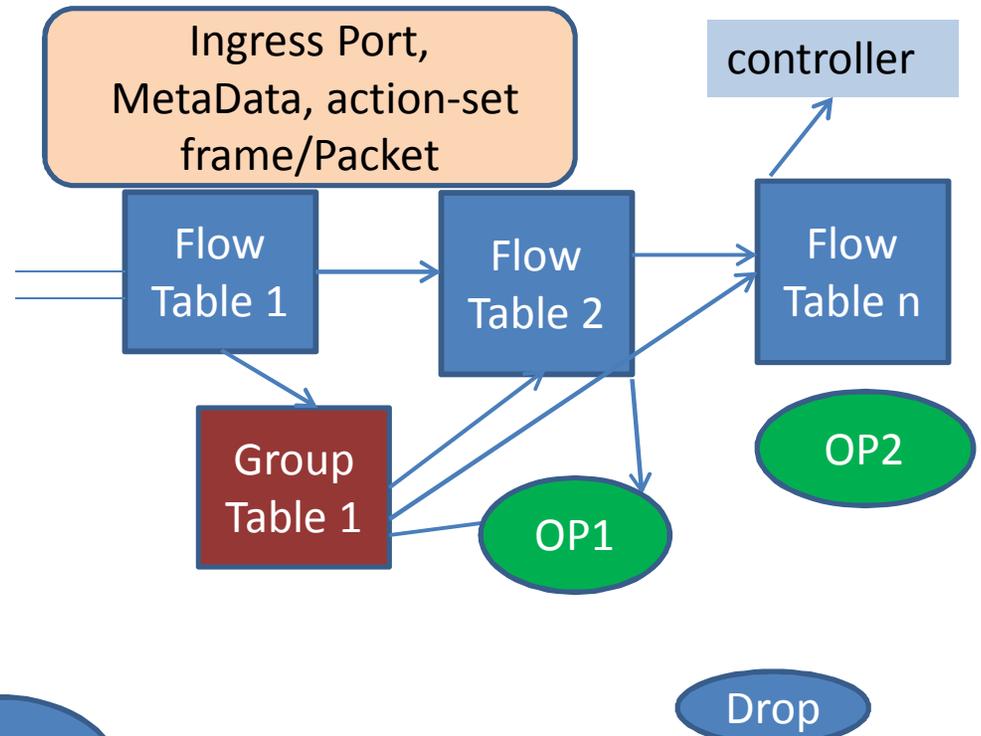


Flow Logic

“ Forces



“ [OFS 1.1]/ [OFS 1.2]



Group Table does not seem to be “forces++”) but rather the LFB logic

FP Modeling and Libraries

- “ Forces FP Modeling
 - . Modeling language to allow flexible definitions and extensions of LFBs
 - . LFB library with models
 - . Sample libraries
 - “ Ethernet LFBs
 - “ IP Validator LFBs
 - “ iP Forwarding (v4/v6 unicast/multicast)
 - “ Redirect
 - “ Schedule, Meta Dispatch

- “ [McKeown-2008][OFS-1.0] [OFS-1.1]
 - . Defined LFB

- “ [OFS-Futures]
 - . Realized that OFS-1.1 was too static
 - . LFB modeling on “todo list”
 - . LB library planed with IPv4, IPv6,
 - . Not Sure if this will be possible

CE/FE Protocol

- ” Forces
- ” Runs over Secure Transport (TML with STCP)
 - . Security optional with IP-Sec
 - . Separated configuration, events, packet exceptions
- ” Controls
 - . Configuration
 - . LFB control download
 - . Error control
 - . Events
- ” Handles Error control
- ” Pre-association concepts

OFS

- ” Runs over Secure Transport (SSL)
- ” Controls
 - . Configuration
 - . Flow Table download
 - . Error/ statistics
 - . no Synchronous events
- ” Handles error control
- ” No pre-association concepts in protocol



*Your complimentary
use period has ended.
Thank you for using
PDF Complete.*

[*Click Here to upgrade to
Unlimited Pages and Expanded Features*](#)

Q & A