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

Å Goals - historically and now
Å Architectural models
Å Flow Logic
Å Forwarding Models and Building Block Libraries
Å Protocol
Å 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

Å Forces – Dynamic definition

ㆍForces

• Dynamic definition

[McKeown2008][OFS1.0] – Static definition & protocol
Flow Logic

Å Forces

Å [OFS 1.1]/ [OFS 1.2)

Ingress Port, MetaData, action-set frame/Packet

Flow Table 1

Flow Table 2

Flow Table n

OP1

Drop

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

Group Table
FP Modeling and Libraries

Å 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

Å [McKeown-2008][OFS-1.0] [OFS-1.1]
  - Defined LFB

Å [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

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

OFS
Å Runs over Secure Transport (SSL)
Å Controls
   ∫ Configuration
   ∫ Flow Table download
   ∫ Error/ statistics
   ∫ no Synchronous events
Å Handles error control
Å No pre-association concepts in protocol
Q & A