Using ViNe IP overlays to establish virtual private condor pools across PRAGMA resources

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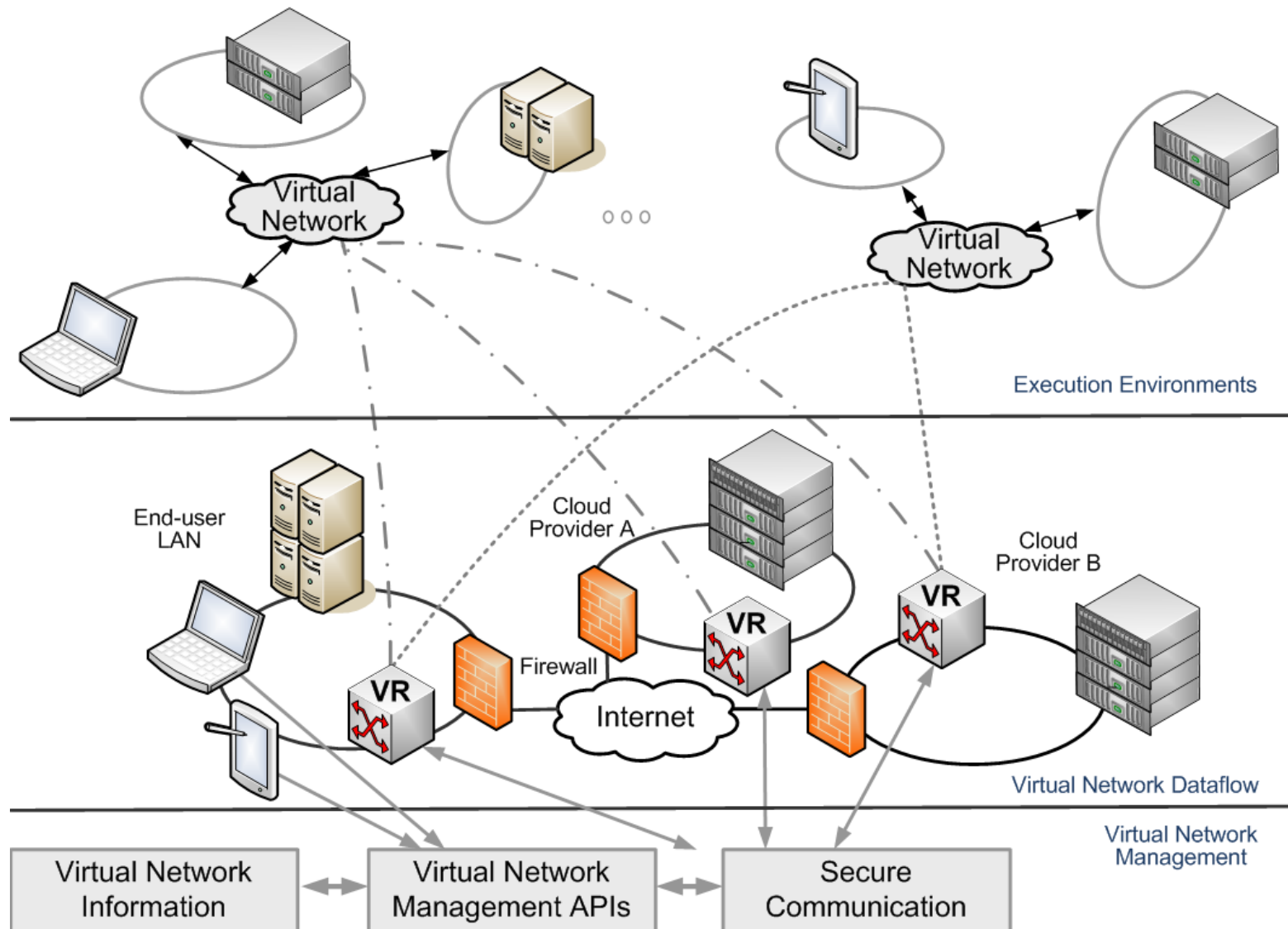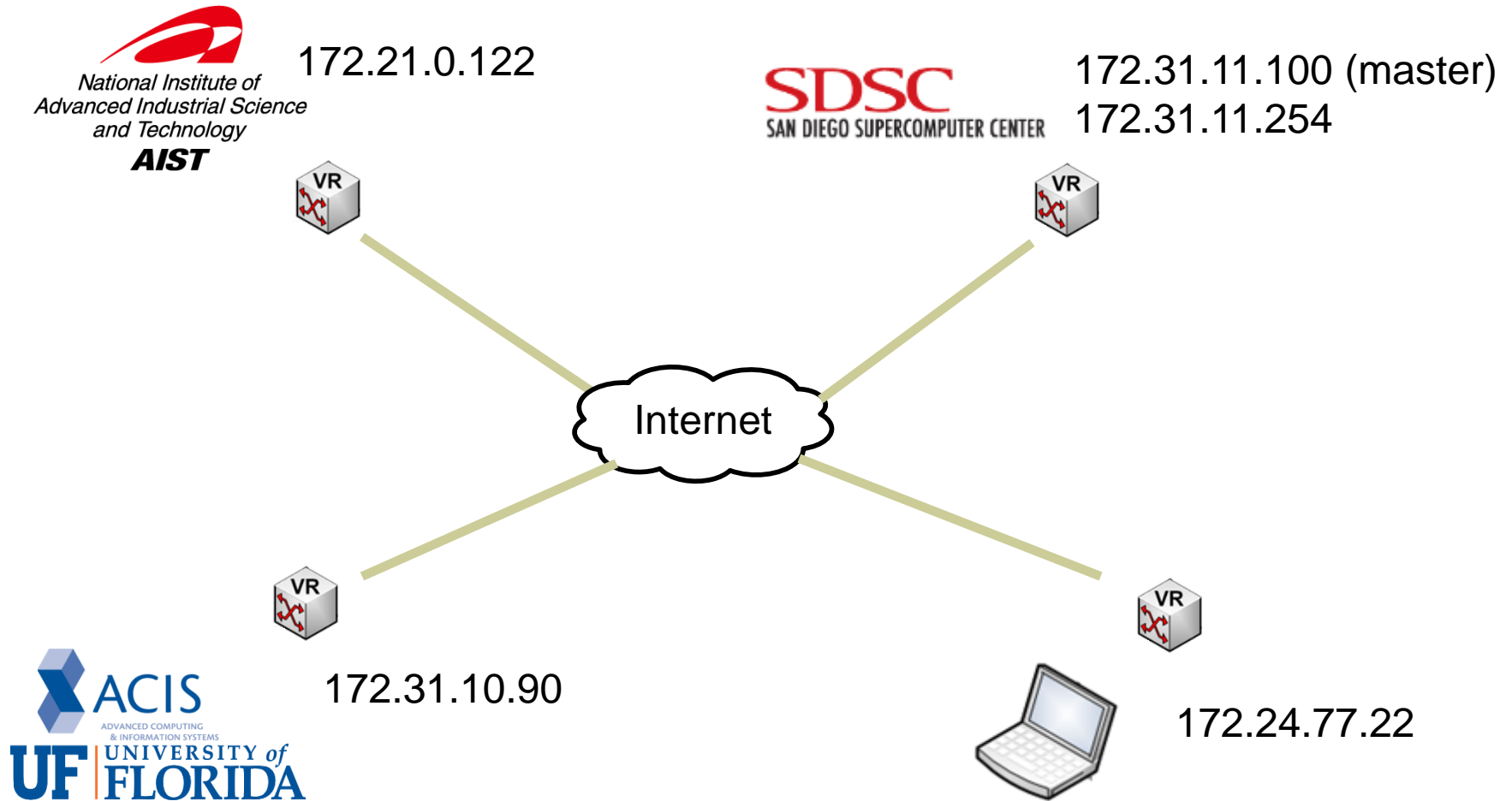
PRAGMA 24 Workshop

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Quick ViNe Overview

- ViNe implements routing and other communication mechanisms needed to deploy user-level virtual networks across WAN

- ViNe offers:

  - Full connectivity among machines (physical and virtual) on public and private networks – built-in firewall traversal

  - Multiple isolated overlays

  - Management APIs

ViNe Architecture

Demo Setup

National Institute of
Advanced Industrial Science
and Technology
AIST

172.21.0.122

SDSC
SAN DIEGO SUPERCOMPUTER CENTER

172.31.11.100 (master)
172.31.11.254

Internet

ACIS
ADVANCED COMPUTING
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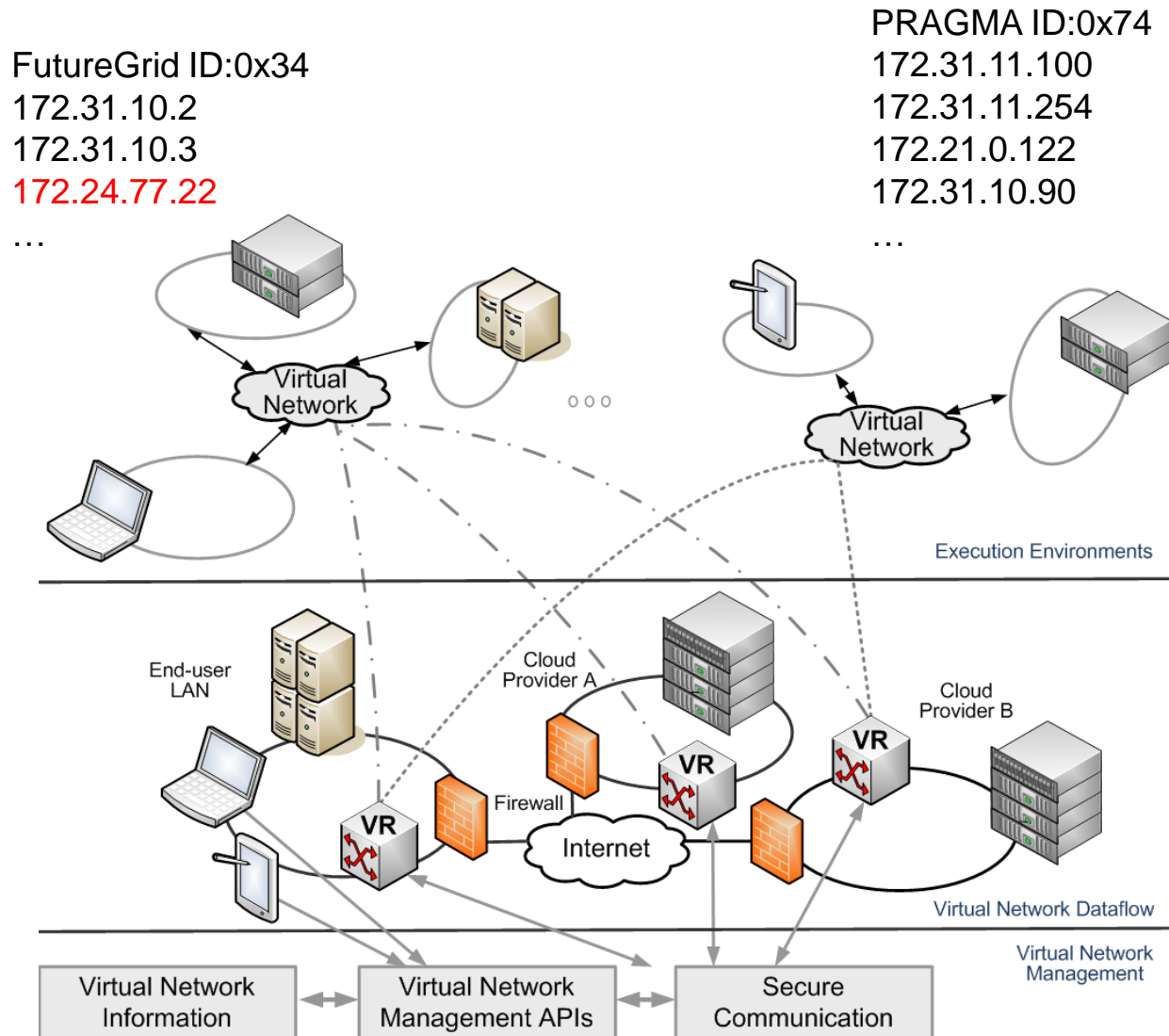
UF | UNIVERSITY of
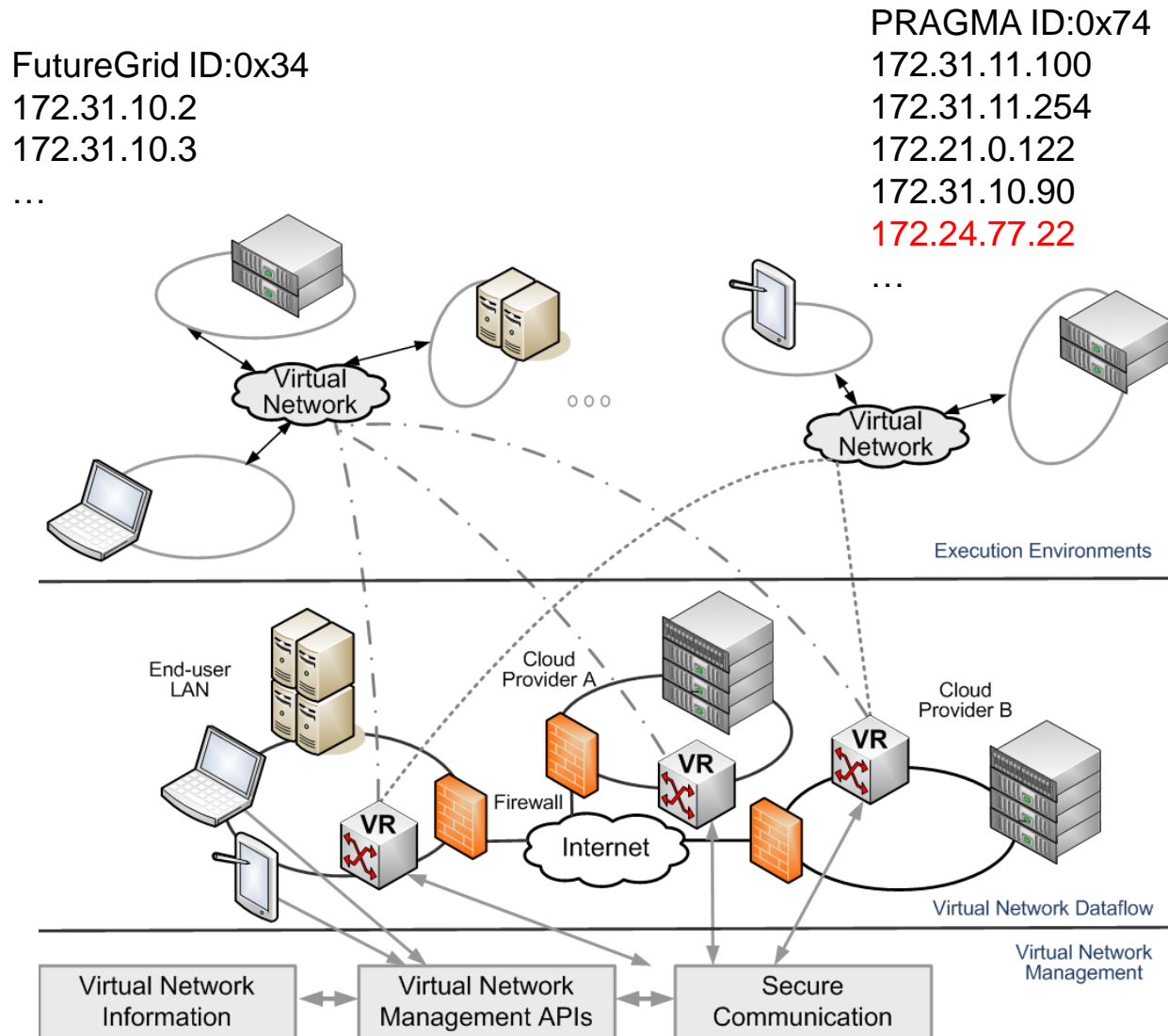FLORIDA

172.31.10.90

172.24.77.22

- Machines connected to private networks
- ViNe routers enable full connectivity among hosts

demo

- Start a VM on local laptop, initially on FutureGrid Overlay

- Show that FutureGrid node can access the local VM

- Show that Condor master cannot access the local VM

- Through ViNe management move the local VM to PRAGMA Overlay

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FutureGrid and PRAGMA overlays

FutureGrid ID:0x34
172.31.10.2
172.31.10.3
172.24.77.22
…

PRAGMA ID:0x74
172.31.11.100
172.31.11.254
172.21.0.122
172.31.10.90
…

FutureGrid and PRAGMA overlays

FutureGrid ID:0x34
172.31.10.2
172.31.10.3
…

PRAGMA ID:0x74
172.31.11.100
172.31.11.254
172.21.0.122
172.31.10.90
172.24.77.22
…

Execution Environments

Virtual Network

Virtual Network

End-user LAN

Cloud Provider A

Cloud Provider B

VR

VR

VR

Firewall

Internet

Virtual Network Dataflow

Virtual Network Management

Virtual Network Information

Virtual Network Management APIs

Secure Communication

Move 172.24.77.22 to PRAGMA overlay