Tamanoir : High Performance Active Networking

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RESO / LIP

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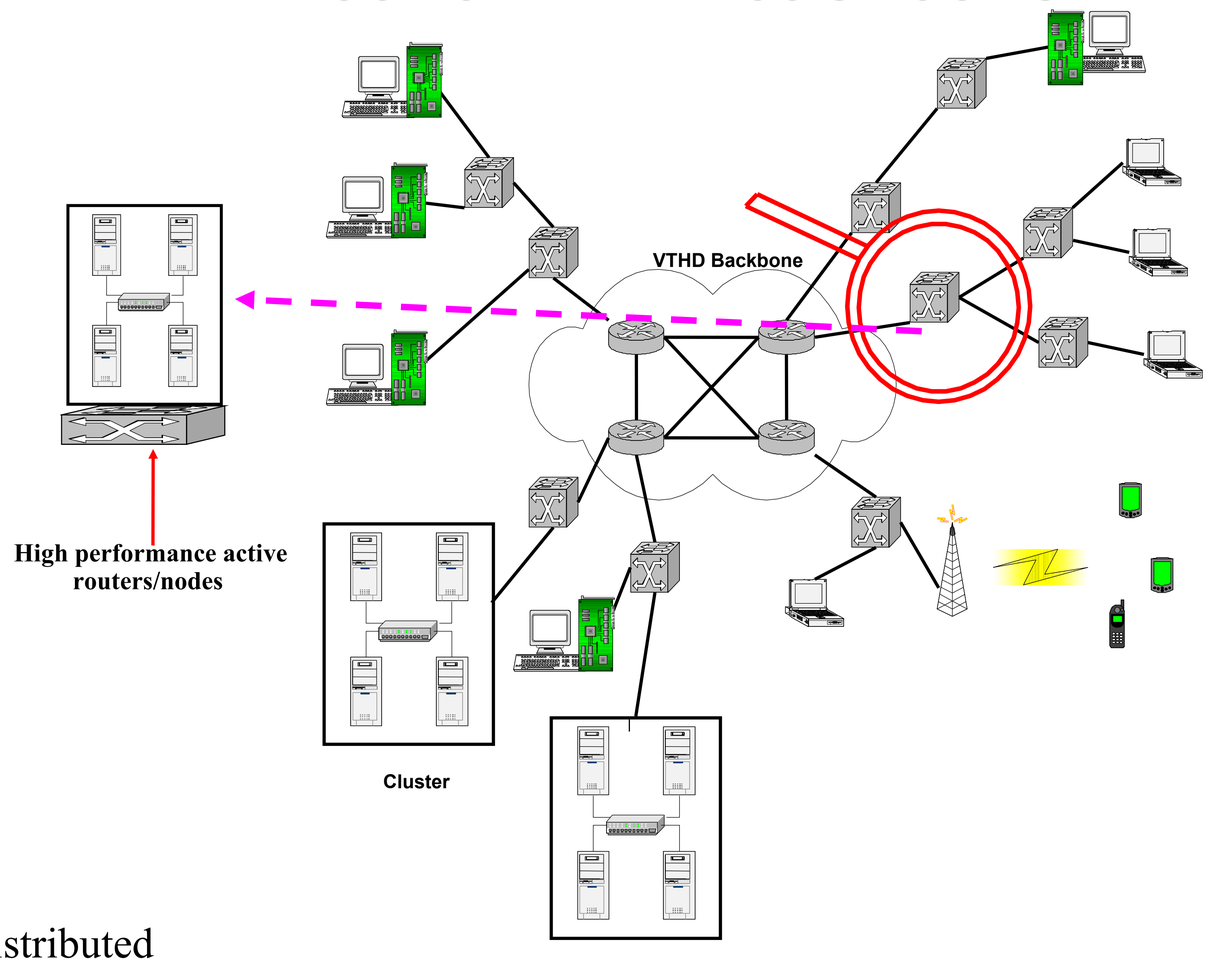
http://www.ens-lyon.fr/LIP/RESO/Tamanoir/

Active networking

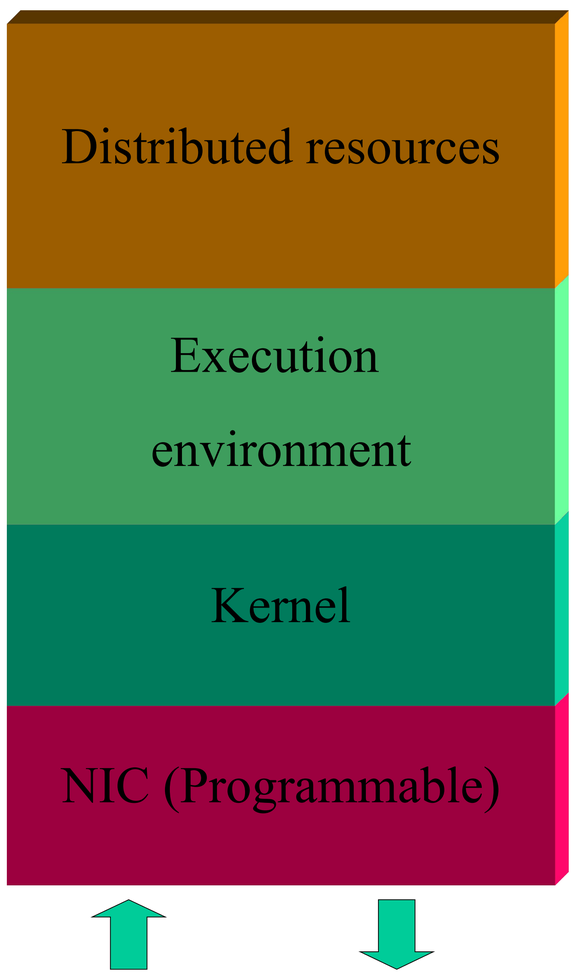
• In ``active" networking , routers or any network equipments (like gateway or proxy) within the network can perform computations on
user data in transit

• End users can modify the behavior of the network by supplying programs, called services, that perform these computations.

Around VTHD backbone



TAMANOIR Architecture



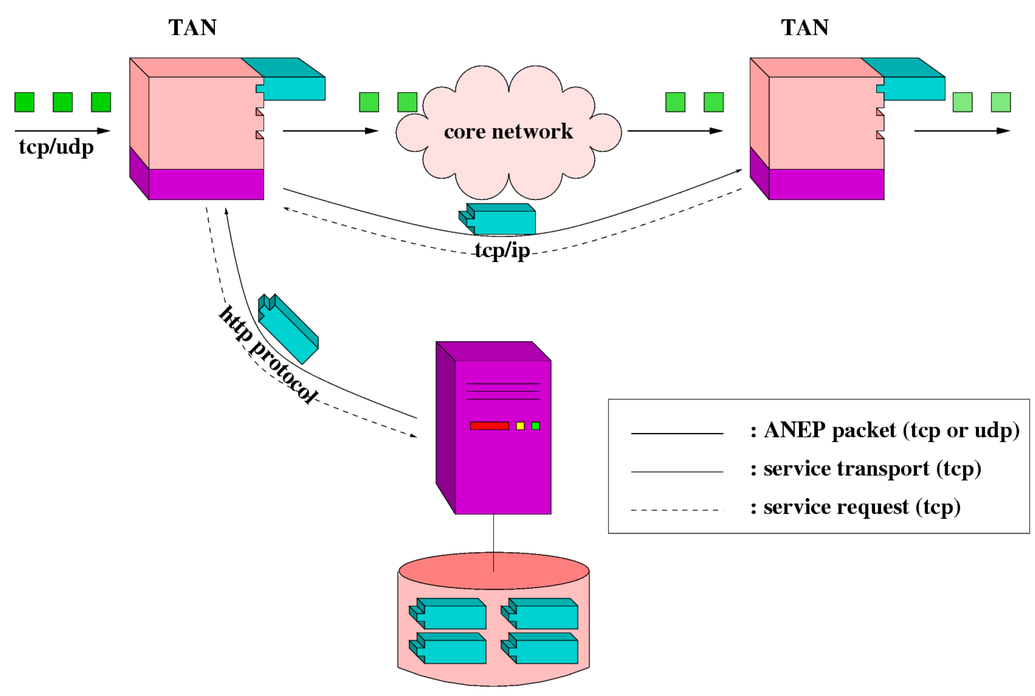
• Resources consuming services : distributed storage, streams transcoding, on the fly compression, cryptography…

• Services deployment / linked with middleware : reliable multicast…

• Middle services : content based routing, QoS...

• Light network services : packet marking, QoS…

Services deployment

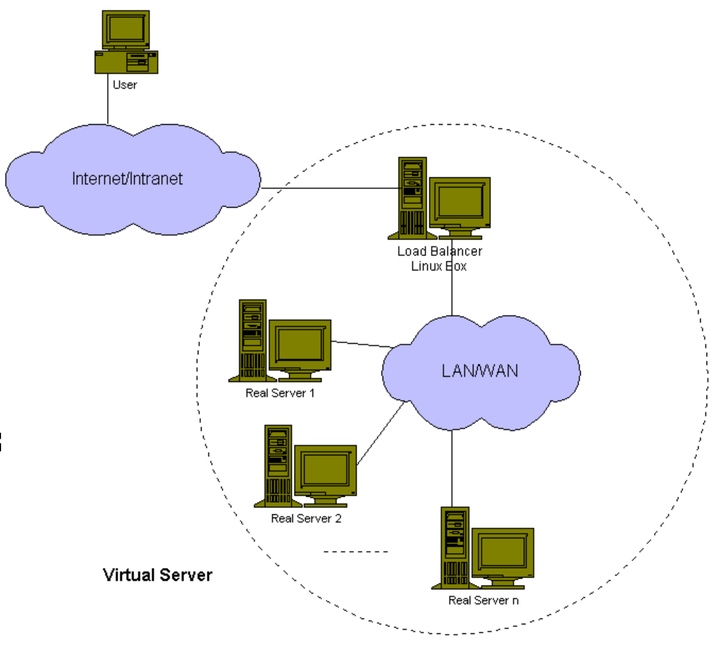


Services are :
• independent from data streams
• deployed on demand when streams reach an AN
Two ways to deploy services :
• by requesting a service broker (http)
• by queering the last crossed TAN

Execution Environment

•Tamanoir Active Nodes (TAN) provide persistent active routers
• Handle different applications and various data stream at the same time
• Support TCP and UDP
• Support of ANEP (Active Network Encapsulated Protocol) format

Cluster



• Tamanoir Active Node built on a cluster
• Based on LVS project (www.linuxvirtualserver.org)
• Improve scalability and availability
• 3 approaches: NAT, Direct Routing (MAC), Tunneling (IPIP)
• Saturation of a 100 Mbits link
•Next step : experiment over Gbits link