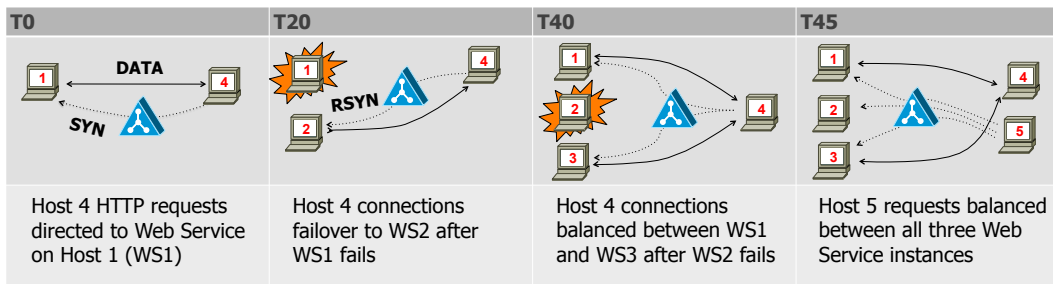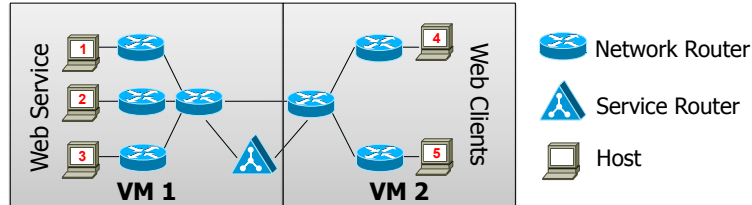# SCAFFOLD Demos

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Connection Failover and Load Balancing
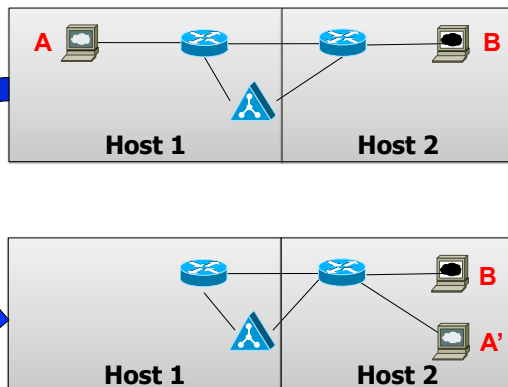
Experimental Setup:
- 2 VMs connected by switched Ethernet
- Each VM runs Mongoose servers or Wget clients on Mininet

Network Router
Service Router
Host

T0	T20	T40	T45
Host 4 HTTP requests directed to Web Service on Host 1 (WS1)	Host 4 connections failover to WS2 after WS1 fails	Host 4 connections balanced between WS1 and WS3 after WS2 fails	Host 5 requests balanced between all three Web Service instances

Migration Across Broadcast Domains
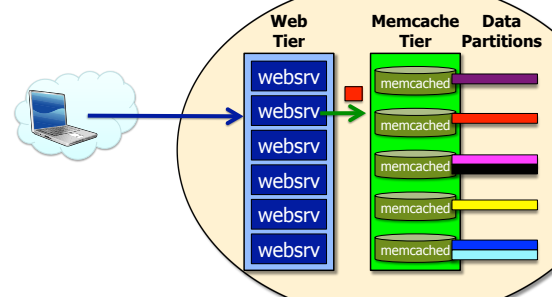
Experimental Setup:
- 2 Physical Hosts on switched GigE, separate L2 subnets
- 2 VMs: Web server and web client
- Web server is migrated across the two hosts

Enabling Technologies
- VirtualBox Tunneling
- SCAFFOLD's in-band signaling for handling churn

Using SCAFFOLD for Multi-Tier Web Services

Service Naming: Name each functional component
- Web service: Pool of web instances for client
- Memcached service: Pool of resources for partition assignment
- Memcached Partition: One/more instances hosting partition

Dynamism: Managing host and instance churn

- **Web server changes:** Controller updates service routers to reflect latest group membership

- **Memcache server joins:** Memcache instance registers itself; controller reassigns existing partitions from others to new memcache instance

- **Memcache server fails:** Memcache instance removed; controller reassigns failed instance's partitions to other existing instances

Summary: Dynamic group membership handled by SCAFFOLD