- Encompasses up to 250,000 users
- Spans “unlimited” number of devices
- Multiple DTEs on a switch port
- Multiple VLANs per DTE
- Campus and MAN coverage

**Routers and VLANs**

- illegal configuration

```
  v1 -- R -- v1
  \|         \|
   v2        v3
```

- legal configuration

```
  v1 -- v1
  \|         \|
   v2        v3
  \|         \|
   v1        v2
```

**Questions/Issues**

- Do we specify interoperability across ISMs?
- When ISM loop detection utilizes the 802.1D Spanning Tree algorithm, there is a potential problem with a single spanning tree for all VLANs

```
  v1 -- ISL -- v1
  \|         \|
   v2        v2
  \|         \|
   v3        v3
```

- An algorithm other than 802.1D STA may be considered for ISM loop detection if it presents VLAN benefits over and above the current STA

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802.1 Interim Meeting
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Virtual LAN Topology

Definitions

- **Virtual LAN Switch**
  virtual LAN aware layer 2 frame forwarding device
- **Interswitch Medium (ISM)**
  medium for muxing 1 or more VLANs between 2 or more VLAN switches
  - Types of ISMs
    (a) point-to-point (ISMPP)
    (b) shared (ISMS)
- **Access Link**
  medium for muxing 1 or more users into a VLAN switch
- **Hybrid Link**
  medium with 2 or more VLAN switches AND 1 or more users attached
- **Private Access Link**
  medium for muxing 1 user into a VLAN switch
- **Network Port**
  VLAN switch port with 1 or more VLAN switches attached
- **Access Port**
  VLAN switch port with 1 or more users attached
- **Hybrid Port**
  VLAN switch port with 1 or more VLAN switches and 1 or more users attached
- **Private Access Port**
  VLAN switch port with 1 user attached

User/VLAN/Port Considerations

- 1 or more users may be attached to 1 or more VLAN switch ports
- each user may be a member of 1 or more VLANs

VLAN Switch Topology Considerations

- VLANs on homogeneous LAN technology
  - ISM same limits as access link (MTU)
    simple encapsulation has problems
- VLAN on heterogeneous LAN technologies
  - ISM more capable than access link (MTU)
    simple encapsulation works
  - ISM less capable than access link (MTU)
    forces fragmentation or forces end station cooperation

Suggestions For Topology

- Supports combinations of star, ring and bus implementations
- Supports MAC and PHY support
- Campus Topology up to 20km radius