Issues Surrounding Transparent Source Route Forwarding

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Goals of this Presentation

- To Define the Working Groups Design Goal
- To show a potential 802.1Q TR tunneling configuration
- To outline some potential issues with this configuration
- To outline one possible solution
- To discuss any other ideas which arise

Design Goals

- To allow Interoperability between vendor implementations

- To make Source Route support simple to use in .1Q environments.

- By creating an autonomously converging network which will resolve to form a single path from any point to any other point, for both Source Routed and Transparent traffic, from a random mesh topology.

What can 802.1Q TR Tunneling be used for?

- Migration of the network core and servers to higher speeds today
  - Alternative to HSTR until it is ready
- It is a cost effective solution due to Ethernet price pressures
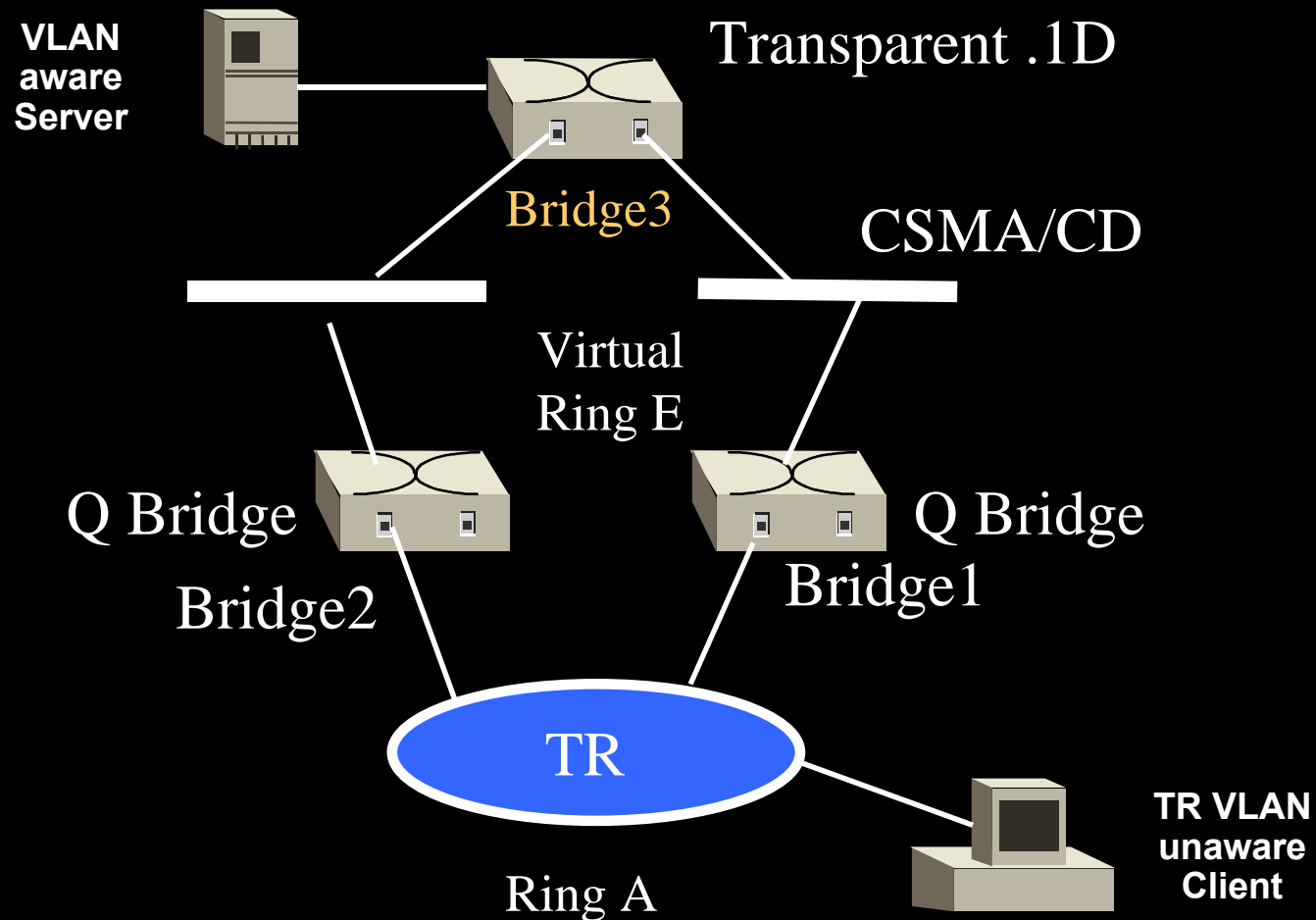- It allows sharing of a single infrastructure with Ethernet
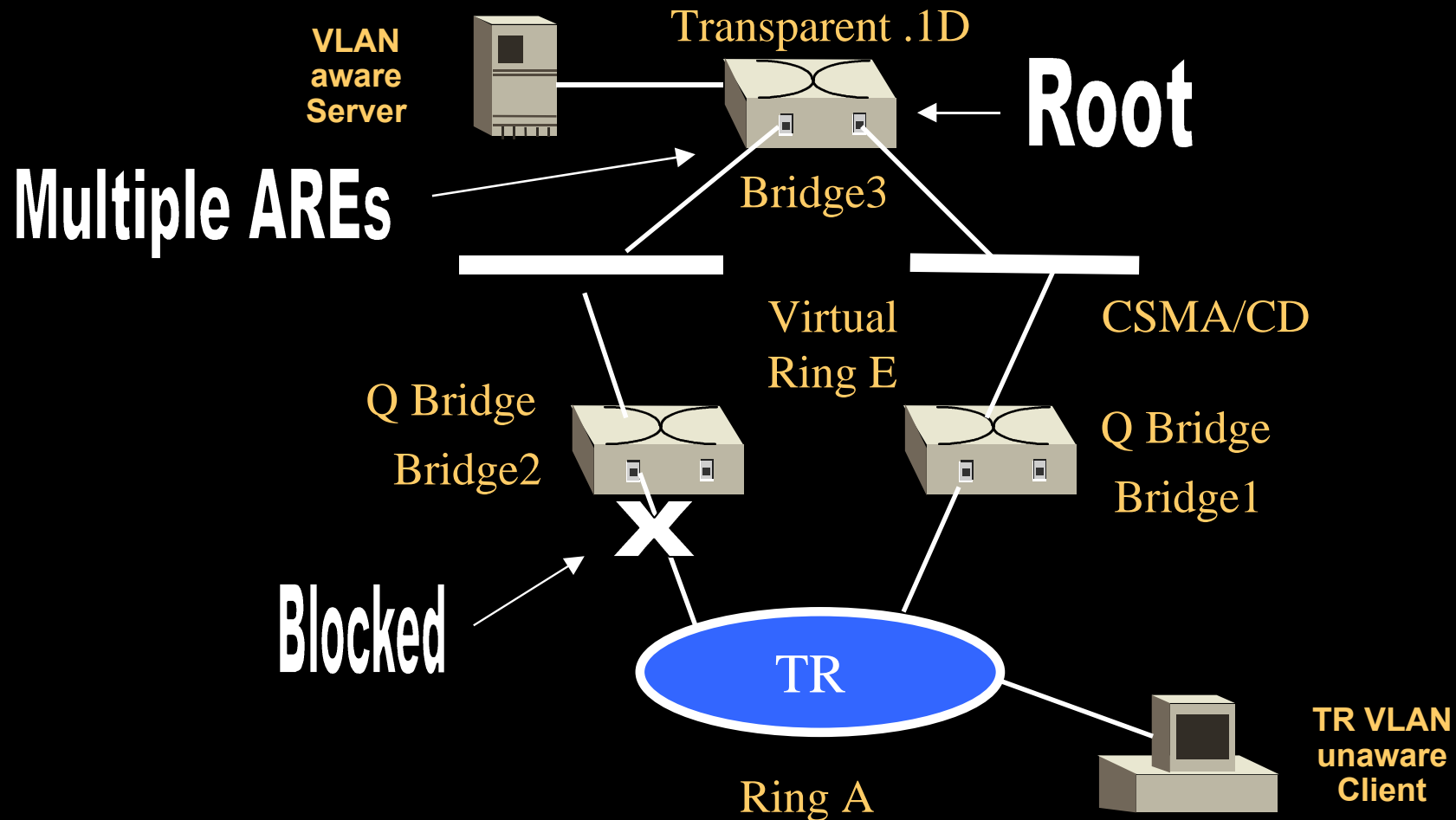
How TR is often Deployed Today
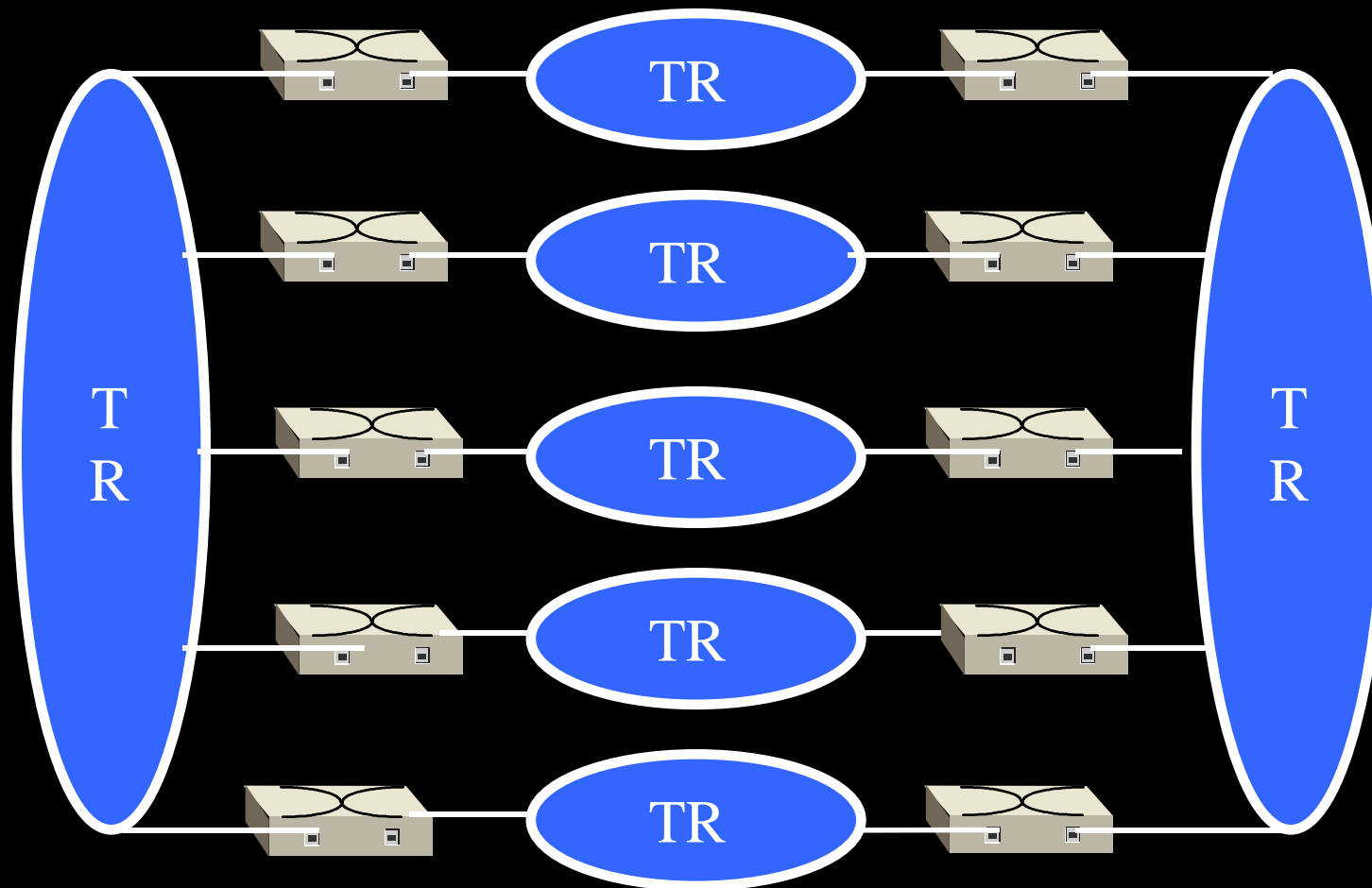
Customer Needs

- Network Redundancy
- Support for SR and TP traffic
- Migration
- Scalability

A Simple Application of Tunneling
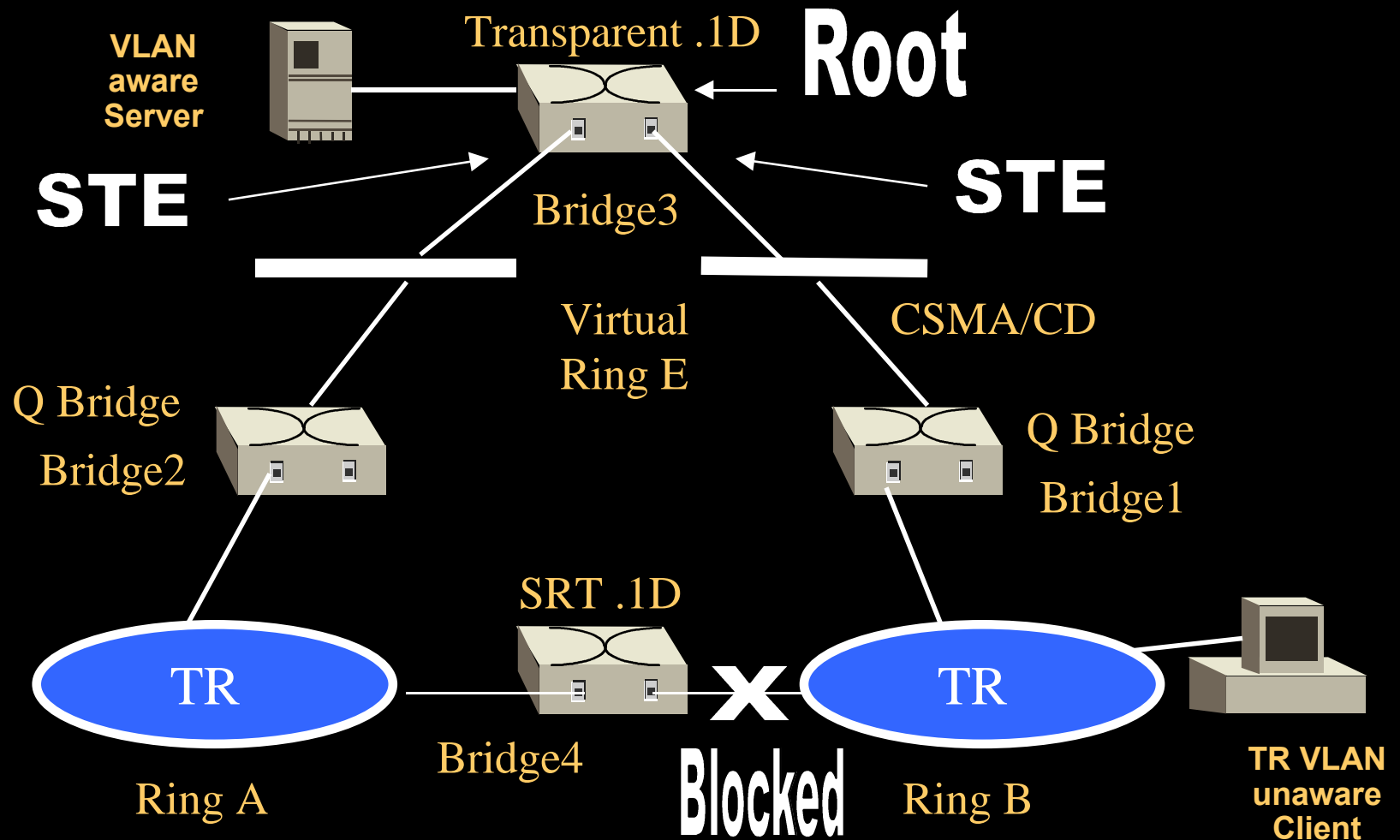
Multiple AREs in Cloud

How this Breaks

- ARE frames from same SR address seen on multiple places on cloud.

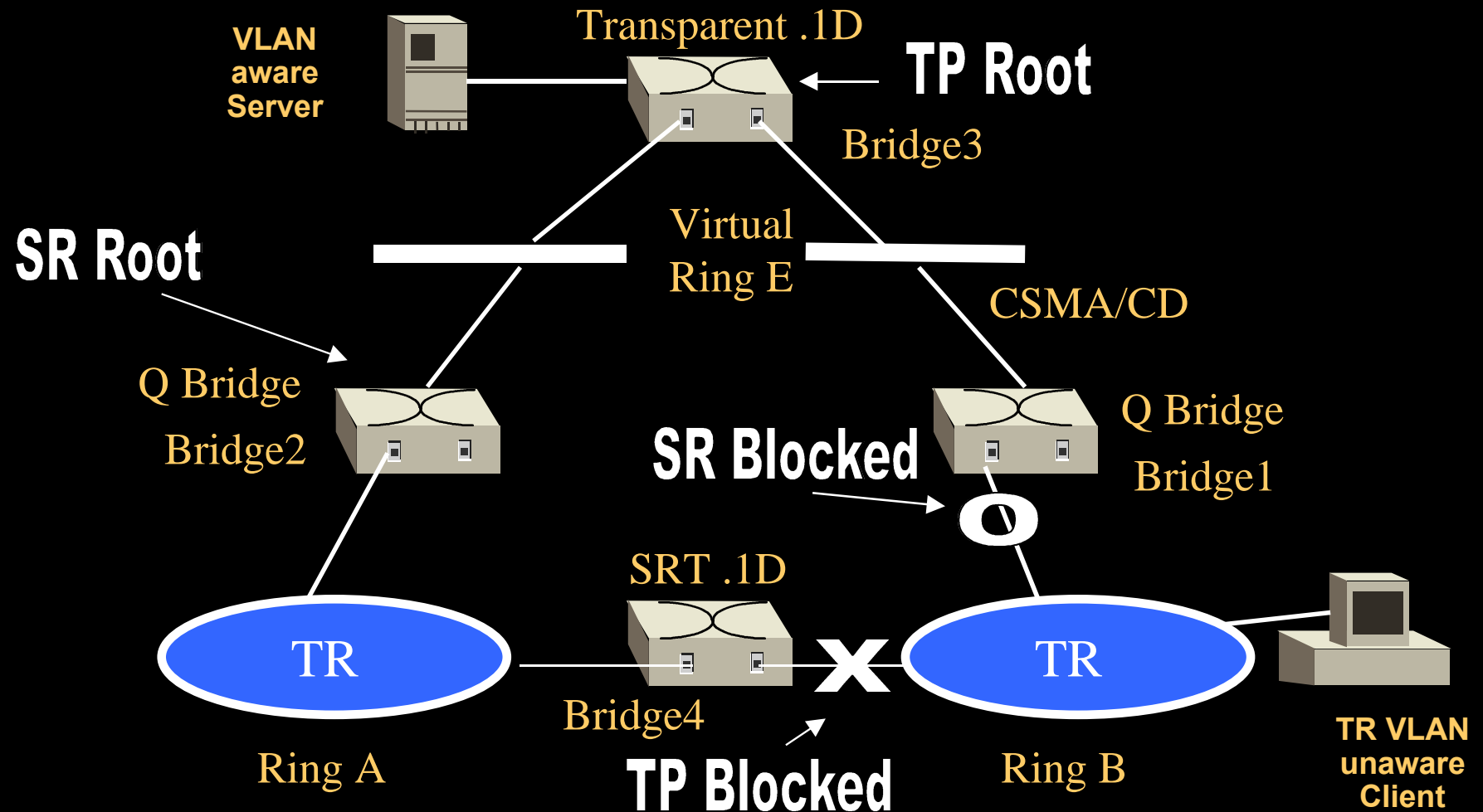- Result is Thrashing and intermittent connections

ARE to STE Conversion

- A Suggestion was made to convert all AREs to STEs and forward along Spanning Tree

- This solves the simple configuration

- This breaks when further elements are introduced, such as an SRT .1D Bridge

A More Complex Diagram

VLAN aware Server

Transparent .1D **Root**

STE → Bridge3 ← **STE**

Virtual Ring E

CSMA/CD

Q Bridge Bridge2

Q Bridge Bridge1

SRT .1D

TR — Bridge4 **X Blocked** — TR
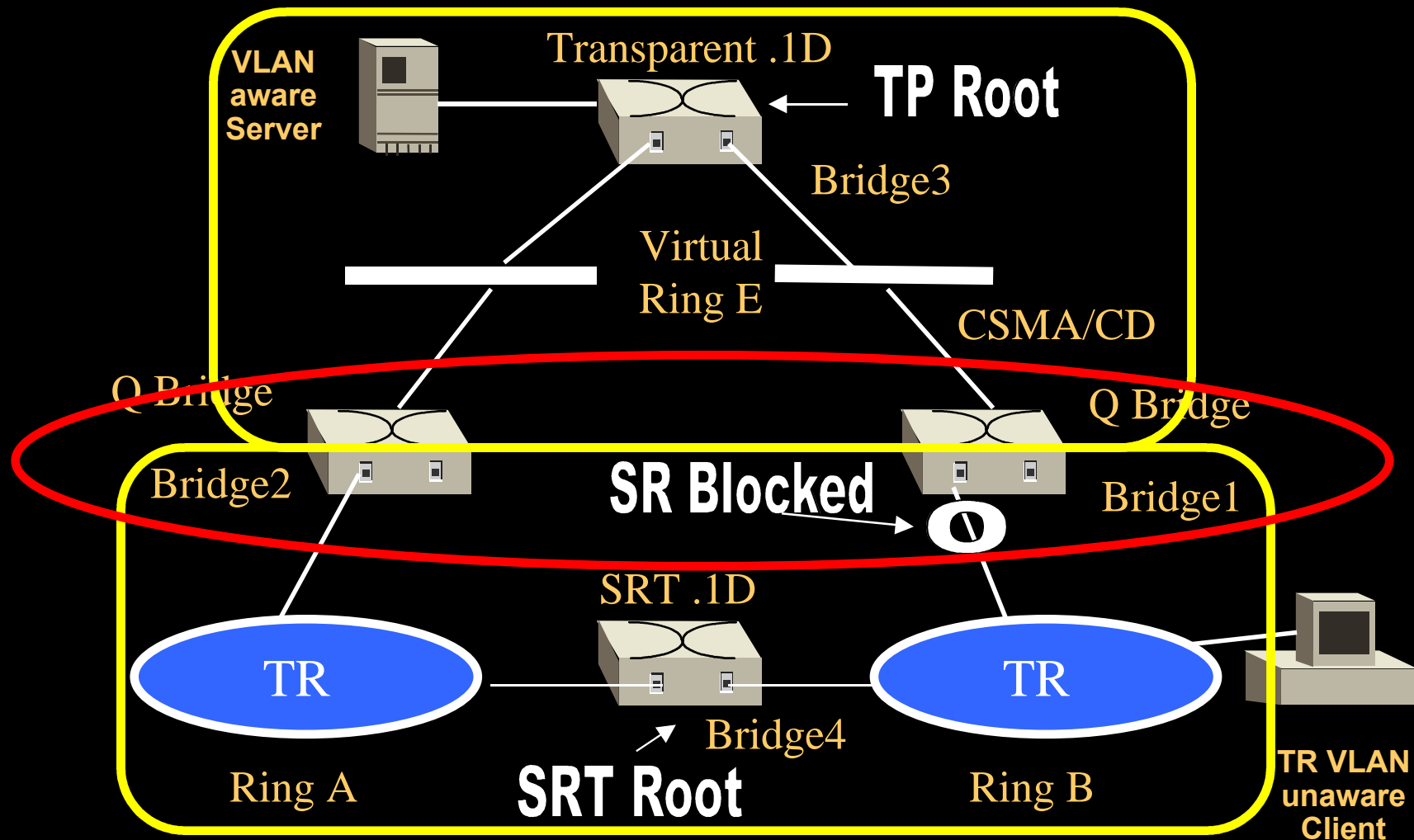
Ring A

Ring B

TR VLAN unaware Client

Using a Second Spanning Tree

How This Breaks

- Multiple AREs are no longer seen in the Transparent cloud

- STE traffic can no longer traverse from client to server

- This Breaks typical SR connections

Spanning Grove

What is Spanning Grove?

- It is a small cluster of Spanning Trees growing together

- The SRT and T trees resolve independently of each other

- The final tree is run by .1Q TR Tunneling Bridges only. It runs over the other two and breaks SR loops.

It also Resolves

- SR Only Bridges in the topology
- IBM Spanning Tree support
- And the Killer configuration
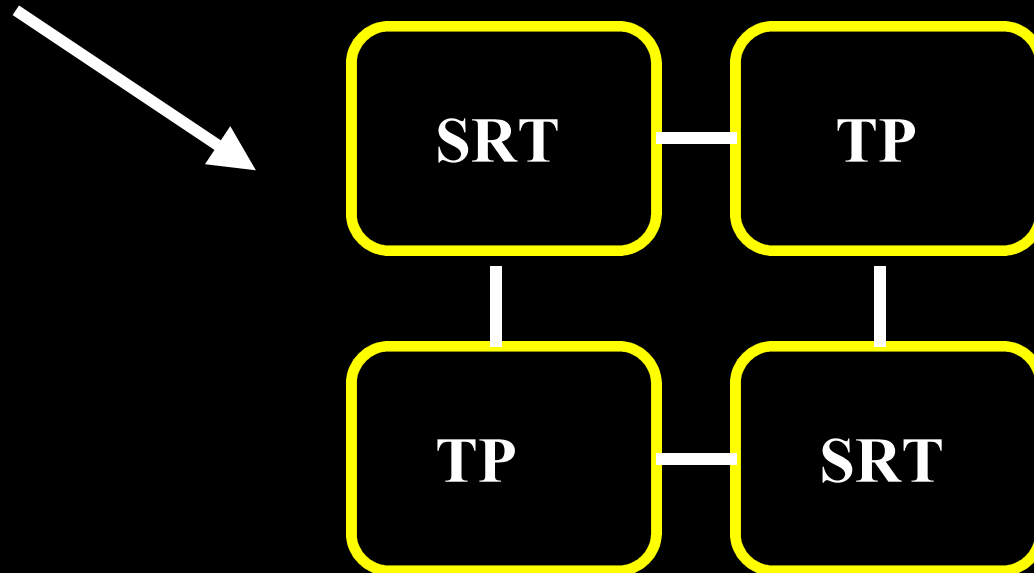
Other Possible Solutions

- PROBABLY, but we have been unable to find one so far that does not fall down in some configuration or other!

- This is a complex Problem requiring significant thought and work to standardize