Bridges
Bridges Outline

- Repeaters
- Bridges
  - Backward learning
- Bridge Loops
  - Spanning trees (transparent bridges)
  - Source-routing bridges (e.g., token rings)
A **repeater** operates at the physical layer and forwards everything between the two LANs. LAN1 and LAN2 are in the same **collision domain**.
Bridges

- Operate at the data link layer.
- **Bridges** use backward learning in recording source address on transmissions.
- Unlike repeaters, bridges will not forward a frame onto another LAN segment if it knows about the location of the destination node.
- **Bridge management gets more complicated when loops are possible in the frame route.**
A bridge is a store and forward device that separates collision domains.
Bridges

LAN1

S1

LAN2

S2

LAN3

S3

LAN4

S4

LAN5

S5

B1

B2

Address | Port
---|---

Address | Port
---|---

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Bridges

LAN1

S1

S2

S1 → S5

port 1

LAN2

LAN3

S3

S4

S5

B1

B2

Address | Port
-------|-----
S1    | 1

Address | Port
-------|-----
S1    | 1

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Bridges

LAN1

S1

LAN2

B1

port 1

S2

port 2

S3

LAN3

S4

S5

S3 → S2

S1

Address: 1

S3: 2

Bridges

S1

Address: 1

S3

Address: 1

LAN1

LAN2

LAN3

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Bridge 1 does not forward the frame to LAN1.
Bridge 1 does not forward the frame to LAN2

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<th>Port</th>
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<tbody>
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</tr>
<tr>
<td>S3</td>
<td>2</td>
</tr>
<tr>
<td>S4</td>
<td>2</td>
</tr>
<tr>
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One solution to bridge loops

**Build a Spanning Tree!**
Bridges Summary

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