

Chapter 12

BGPv4

- RFC 1771
- BGP is a path vector protocol
- TCP Port 179
- iBGP & eBGP
- Policy Based Routing

Chapter 12

BGP Neighbors

- eBGP

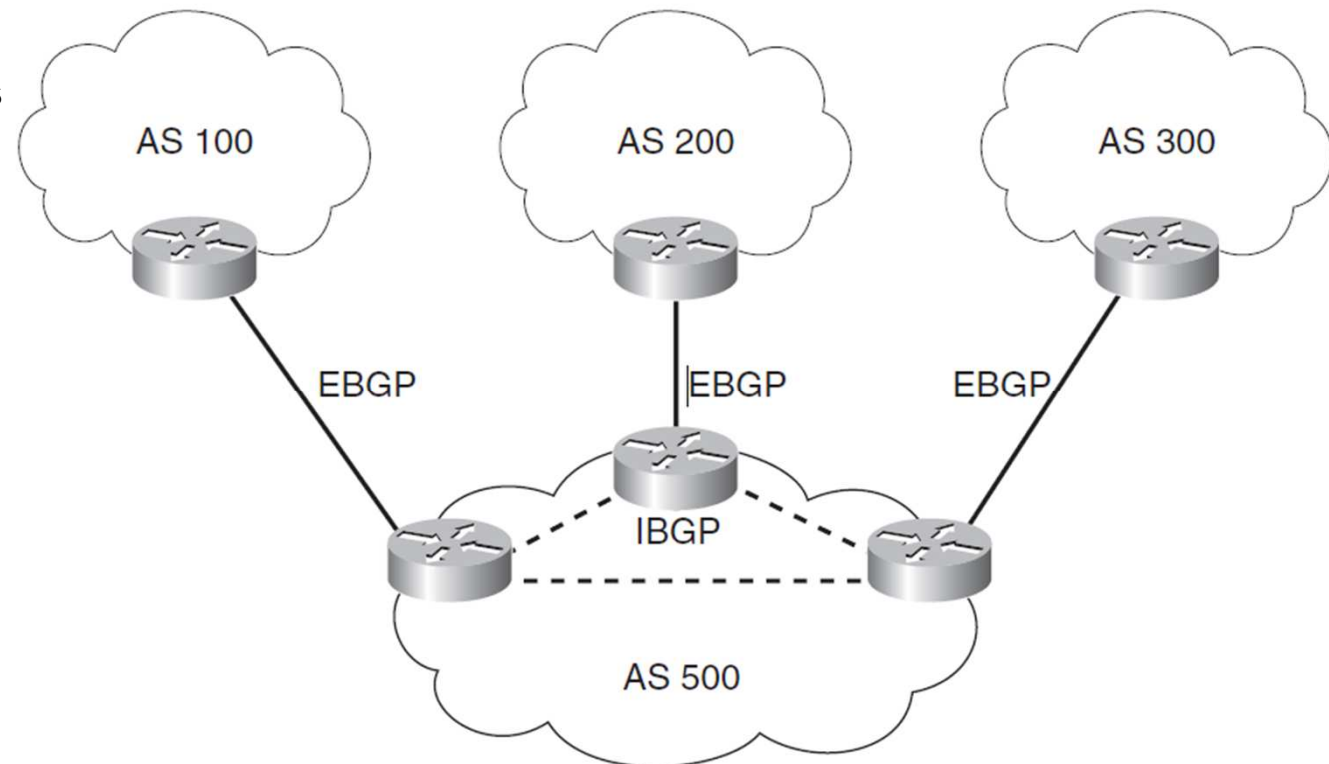
 - eBGP peers share a common subnet

- iBGP

 - Used in Transit Ass

- Route reflectors

- Confederations



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BGP Attributes

- Well-known

- Mandatory
- Discretionary

- Optional

- Transitive
- Nontransitive

- Next-Hop

- Local Preference

- Origin

- AS Path

- MED

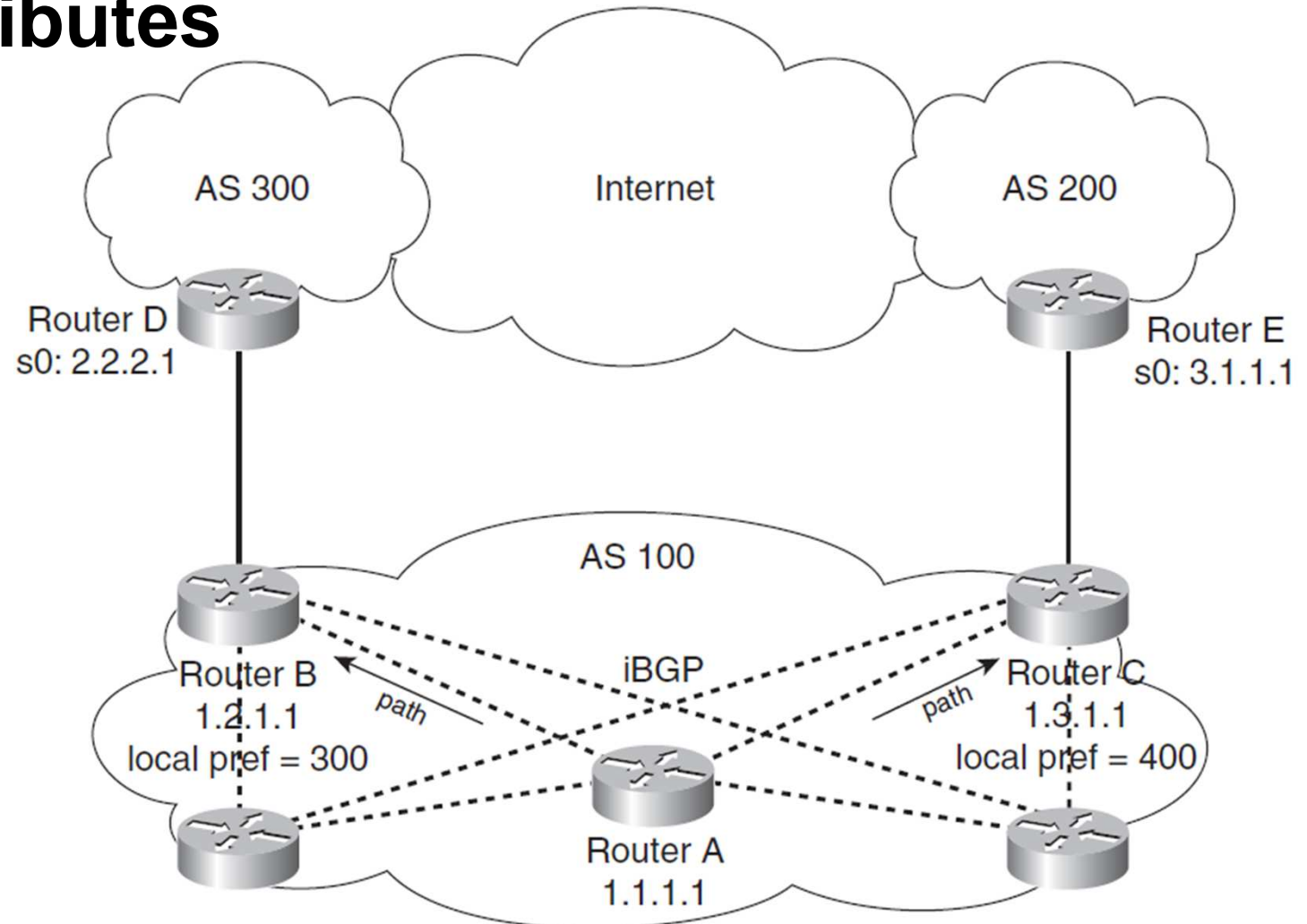
- Weight

- Community

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BGP Attributes

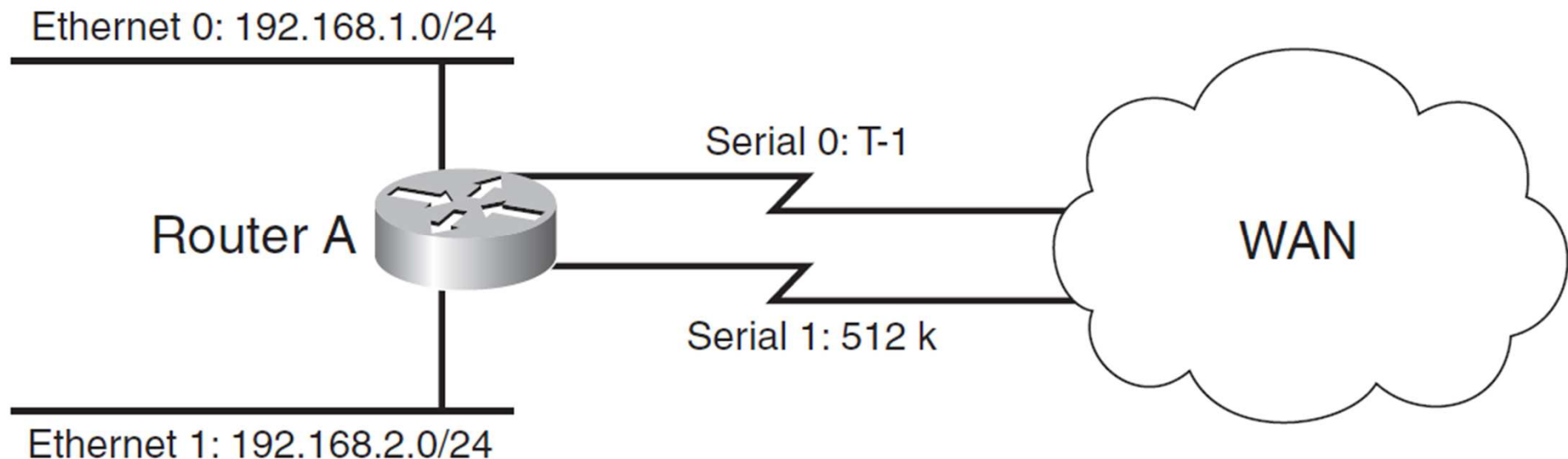
- Next-Hop
- Local Preference
- Origin
- AS Path
- MED
- Weight
- Community



Chapter 12

PBR – Policy Based Routing

- Source address
- Size
- Protocol
- QoS bits
- Route-maps



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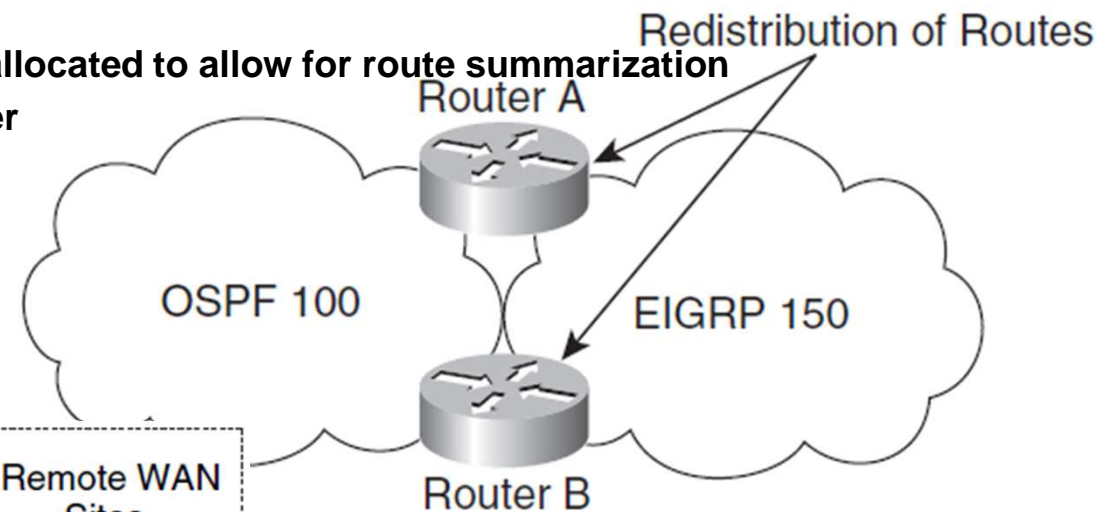
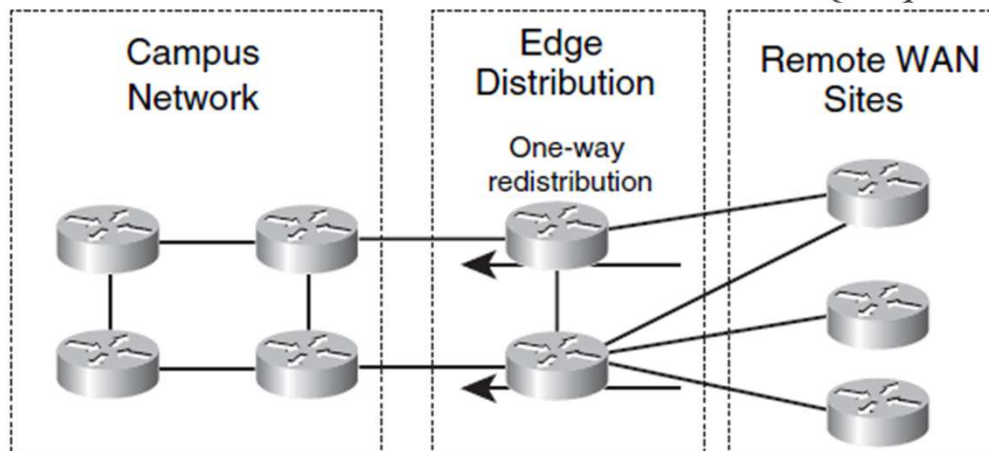
Route Manipulation

•Route Summarization

- Network IP addresses should be allocated to allow for route summarization
- Summarize at the distribution layer

•Route Redistribution

- Old to new routing protocol
- Mixed-vendor environment
- Mergers and acquisitions



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IP Multicast Review

Multicast Address	Description
224.0.0.0/24	Local network control block
224.0.0.1	All hosts or all systems on this subnet
224.0.0.2	All multicast routers
224.0.0.4	Distance-Vector Multicast Routing Protocol (DVMRP) routers
224.0.0.5	All OSPF routers
224.0.0.6	All OSPF DR routers
224.0.0.9	RIPv2 routers
224.0.0.10	EIGRP routers
224.0.0.13	All PIM routers
224.0.1.0/24	Internetwork control block
224.0.1.39	Rendezvous point (RP) announce
224.0.1.40	RP discovery
224.0.2.0 to 224.0.255.0	Ad hoc block
239.0.0.0.0 to 239.255.255.255	Administratively scoped
239.192.0.0.0 to 239.251.255.255	Organization-local scope
239.252.0.0.0 to 239.254.255.255	Site-local scope

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Layer 3 to Layer 2 Mapping

Multicast IP

Decimal: 239.192.44.56

Hex: EF C0 2C 38

Binary: 111011111000000010110000111000

Base MAC address

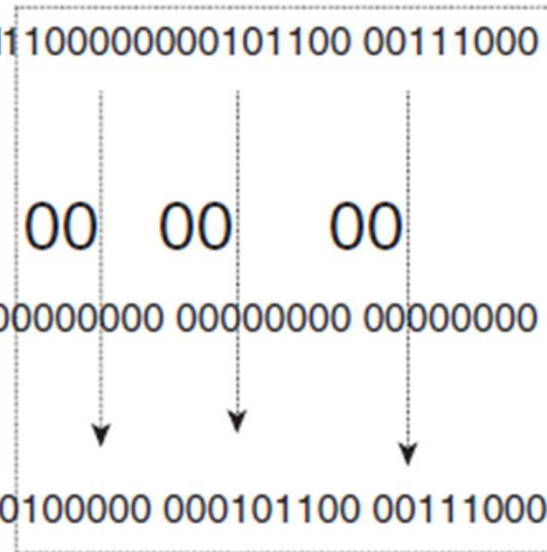
Hex: 01 00 5E 00 00 00

Binary: 00000001 00000000 01011110 00000000 00000000 00000000

Multicast MAC address

Binary: 00000001 00000000 01011110 01000000 000101100 00111000

Hex: 01 00 5E 40 2C 38



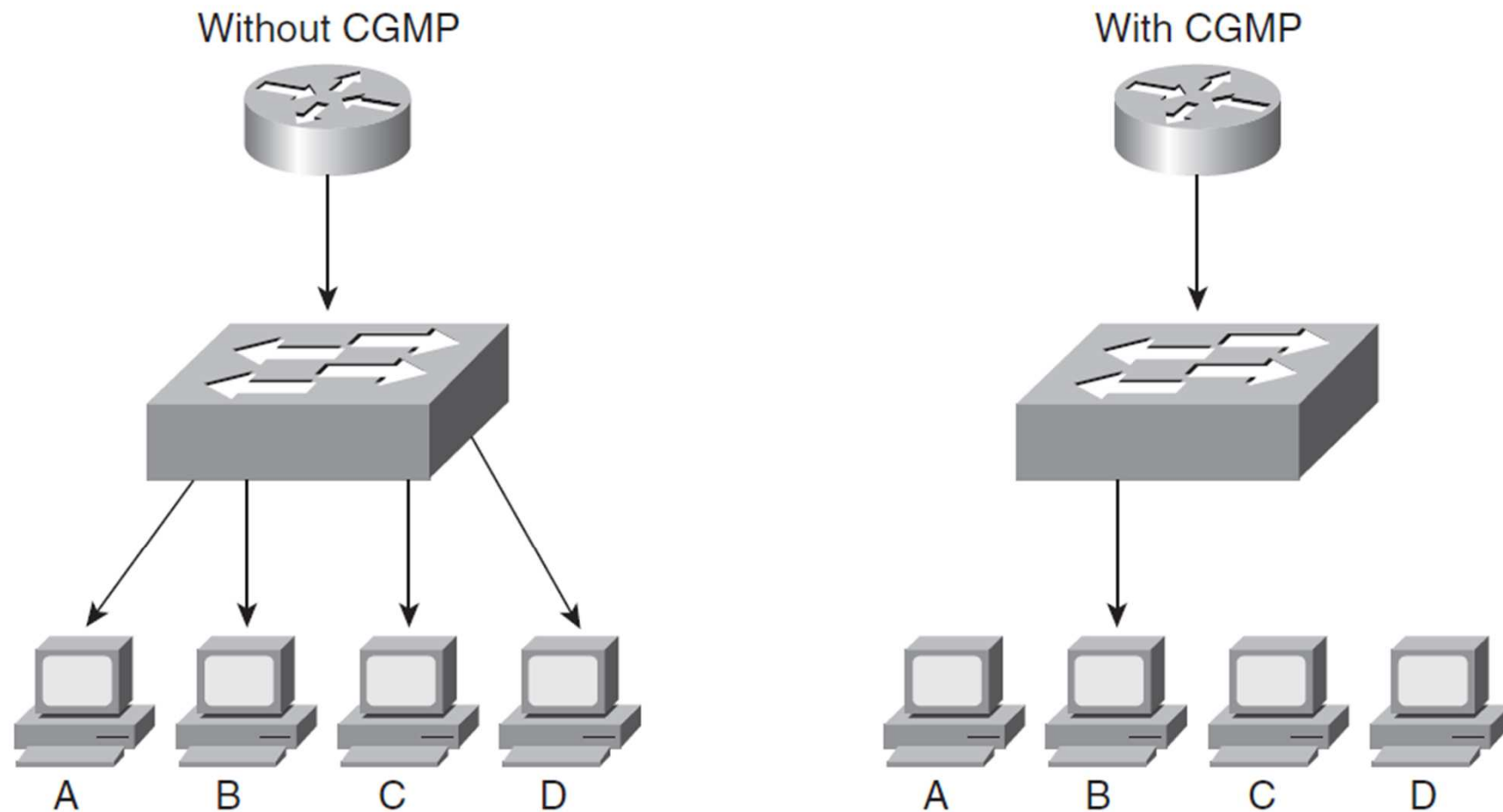
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IGMP

- RFC 1112(v1)
- RFC 2236(v2)
 - Leave message
- RFC 3376(v3)
 - Source Selection
- Host to Router

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CGMP & IGMP Snooping



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Sparse Vs. Dense Mode

- Dense mode

- Sender til alle, med mindre man har sagt fra.
- PIM-DM
- Multicast Open Shortest Path First
- Source tree

- Sparse mode

- Sender ikke, med mindre man requester
- PIM-SM
- Shared Tree

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IPv6 Multicast Addresses

Multicast Address	Multicast Group
FF01::1	All nodes (node-local)
FF02::1	All nodes (link-local)
FF01::2	All routers (node-local)
FF02::2	All routers (link-local)
FF02::5	OSPFv3 routers
FF02::6	OSPFv3 designated routers
FF02::9	Routing Information Protocol (RIPng)
FF02::A	EIGRP routers
FF02::B	Mobile agents
FF02::C	DHCP servers/relay agents
FF02::D	All PIM routers

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