



BGP Deep Dive

Troubleshooting BGP Peerings - Part 1



BGP Problem Statement

- + R5 and R6 are unable to exchange BGP updates. Find the problem and modify the network so that R5 and R6 have reachability to each others' Loopback1 interfaces via BGP.





BGP Deep Dive

Troubleshooting BGP Peerings - Part 2



BGP Problem Statement

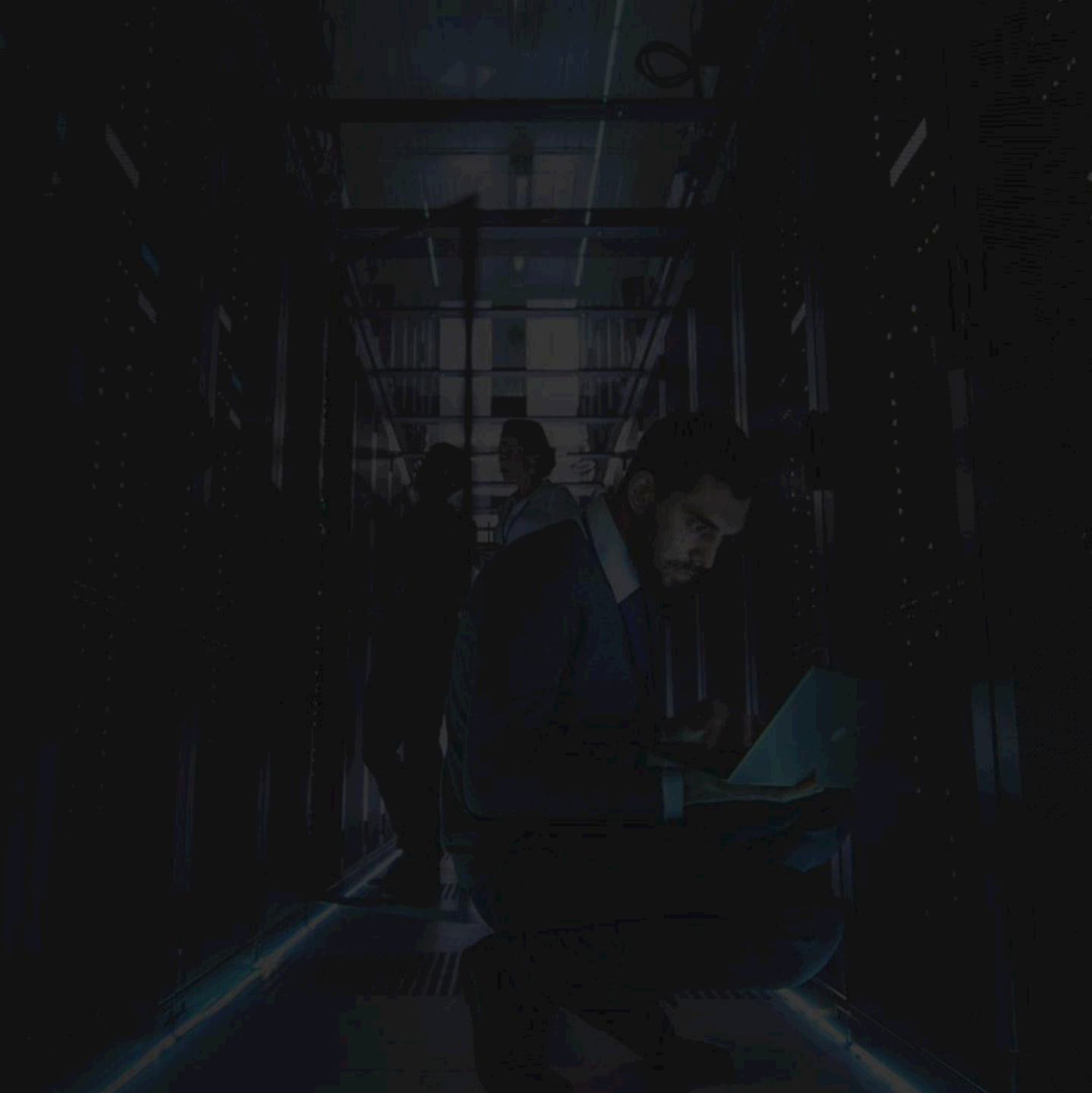
- + R1 and R5 are unable to exchange BGP updates. Find the problem and modify the network so that R1 and R5 have reachability to each others' Loopback1 interfaces via BGP.





BGP Deep Dive

Troubleshooting BGP Peerings - Part 3



BGP Problem Statement

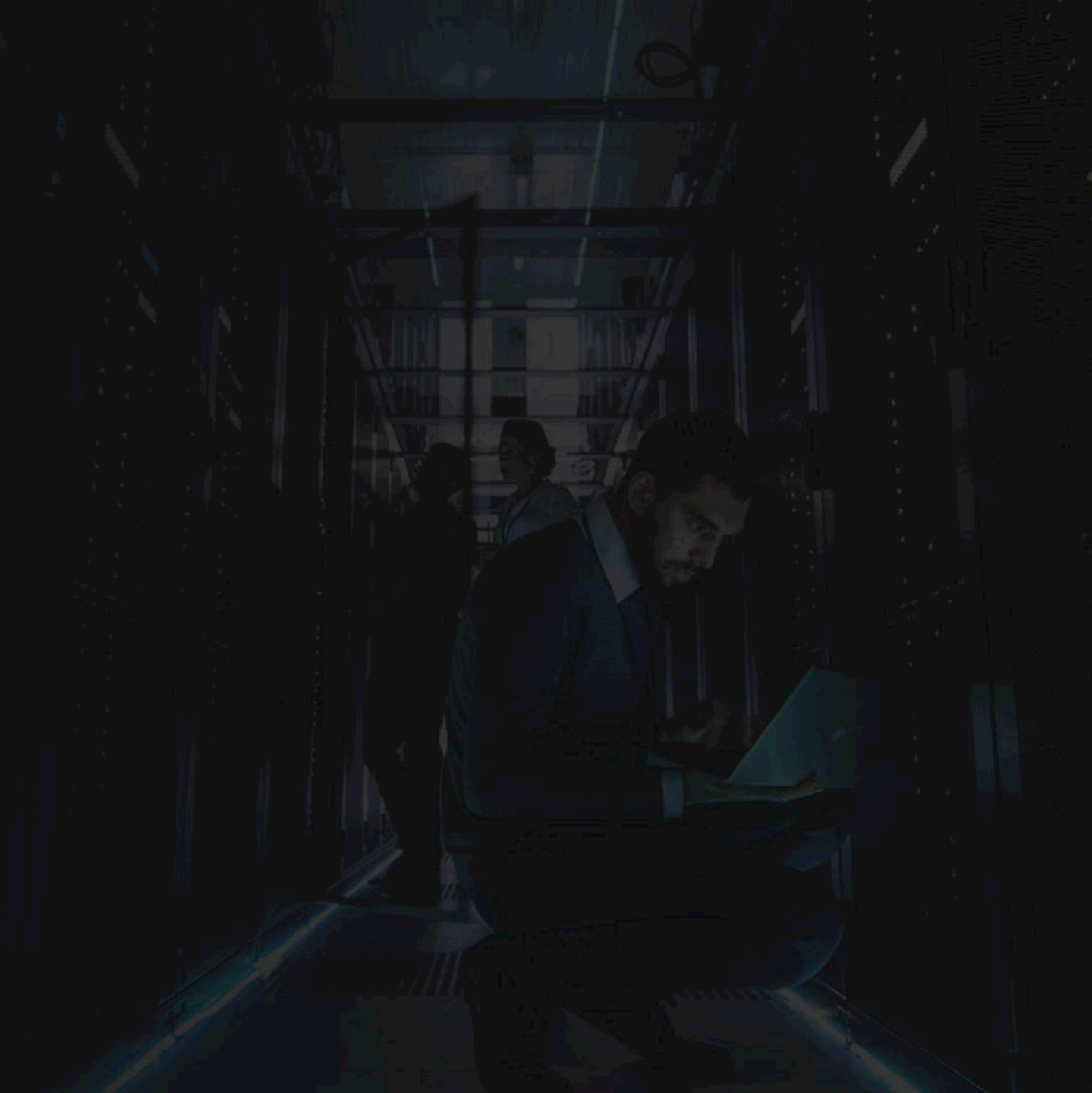
- + R2 and R5 are unable to exchange BGP updates. Find the problem and modify the network so that R2 and R5 have reachability to each others' Loopback1 interfaces via BGP.





BGP Deep Dive

Troubleshooting BGP Peerings - Part 4



BGP Problem Statement

- + R3 and R5 are unable to exchange BGP updates. Find the problem and modify the network so that R3 and R5 have reachability to each others' Loopback1 interfaces via BGP.





BGP Deep Dive

Troubleshooting BGP Peerings - Part 5

BGP Problem Statement

- + R4 and R5 are unable to exchange BGP updates. Find the problem and modify the network so that R4 and R5 have reachability to each others' Loopback1 interfaces via BGP.





BGP Deep Dive

Troubleshooting BGP Peerings - Part 6



BGP Problem Statement

- + R5 is turning up a new BGP peering with a new provider, R1. The new provider gave you the IP address 150.1.1.1 to peer with, but they neglected to tell you what AS number R1 is using. Configure R5 to successfully peer with R1 without looking at the configuration on R1. Once complete, R1 and R5 should have reachability to each others' Loopback1 interfaces via BGP.





BGP Deep Dive

Troubleshooting BGP Peerings - Part 7



BGP Problem Statement

- + R2 and R5 are unable to exchange BGP updates. Find the problem and modify the network so that R2 and R5 have reachability to each others' Loopback1 interfaces via BGP.





BGP Deep Dive

Troubleshooting BGP Peerings - Part 8

BGP Problem Statement

- + R1 and R5 are unable to exchange BGP updates. Find the problem and modify the network so that R1 and R5 have reachability to each others' Loopback1 interfaces via BGP.





BGP Deep Dive

Troubleshooting BGP Advertisements - Part 1



BGP Problem Statement

- + R1 and R2 are unable to reach each others BGP loopback interfaces. Find the problem and modify the network so that R1 and R2 have reachability to each others' Loopback1 interfaces via BGP.





BGP Deep Dive

Troubleshooting BGP Advertisements - Part 2



BGP Problem Statement

- + R2 and R4 are unable to reach each others BGP loopback interfaces. Find the problem and modify the network so that R2 and R4 have reachability to each others' Loopback1 interfaces via BGP.





BGP Deep Dive

Troubleshooting BGP Advertisements - Part 3



BGP Problem Statement

- + R3 and R4 are unable to reach each others BGP loopback interfaces. Find the problem and modify the network so that R3 and R4 have reachability to each others' Loopback1 interfaces via BGP.





BGP Deep Dive

Troubleshooting BGP Advertisements - Part 4



BGP Problem Statement

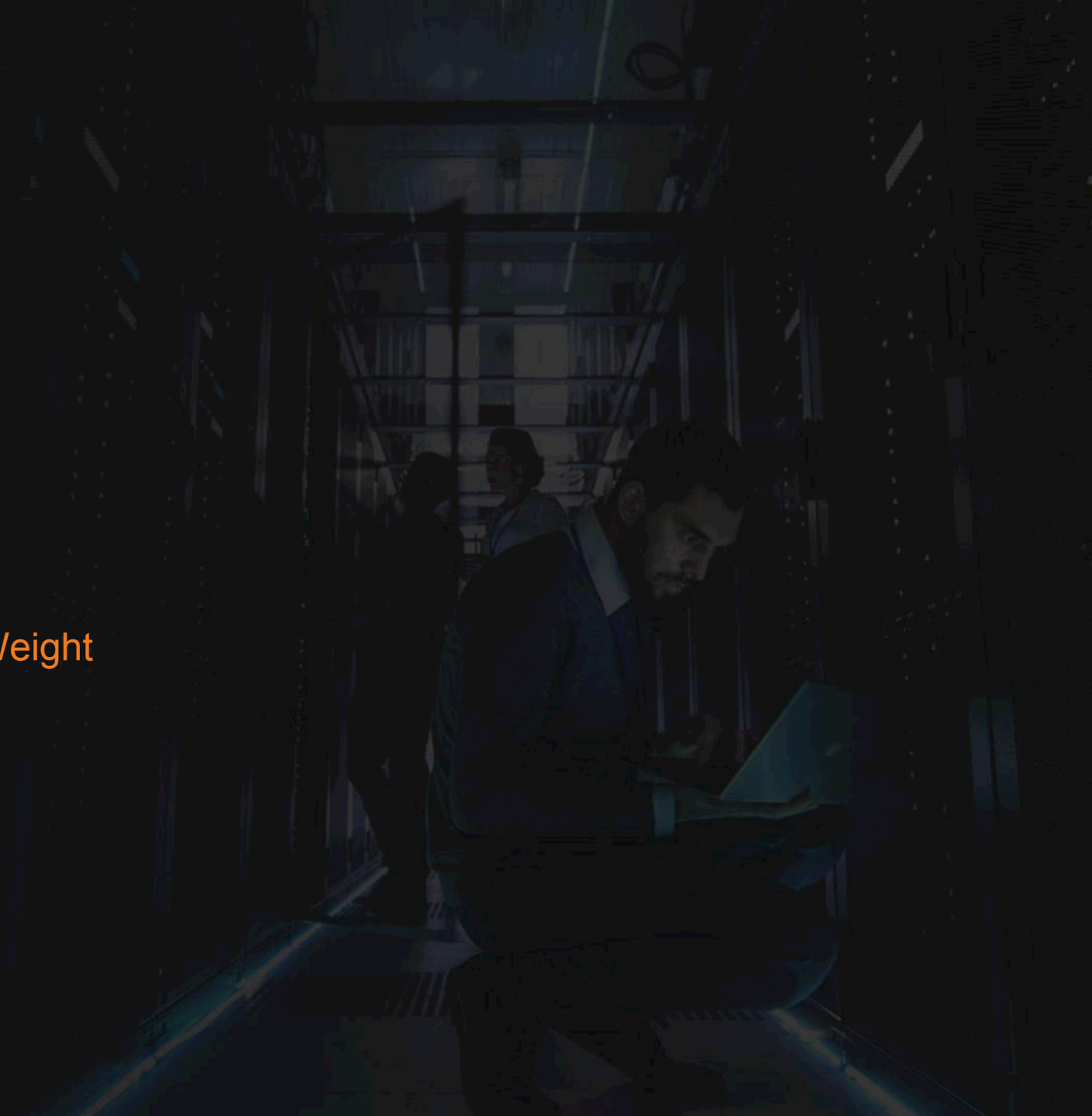
- + R7 is unable to reach each the BGP loopback interfaces of the DMVPN network, with the exception of R3. Find the problem and modify the network so that R7 has reachability to the DMVPN routers' Loopback1 interfaces via BGP.





BGP Deep Dive

Understanding BGP Bestpath Selection - Weight



BGP Problem Statement

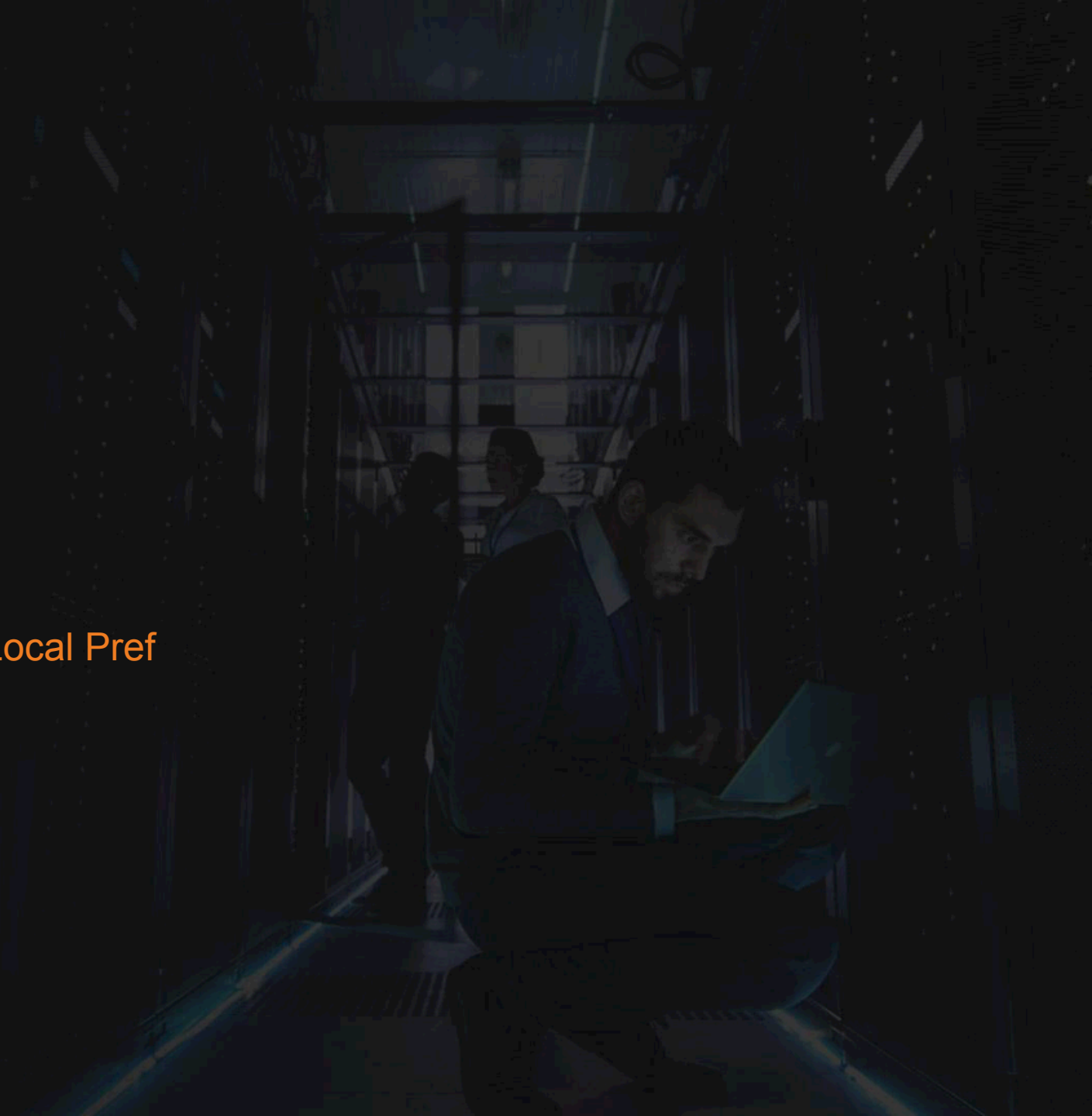
- + AS 100 has multiple peers to AS 200 via R6 and R7. Using weight, modify the network so that R3's peering to R7 is used as the primary exit point for AS 100 to reach the BGP Loopback1 interfaces in AS 200.





BGP Deep Dive

Understanding BGP Bestpath Selection – Local Pref



BGP Problem Statement

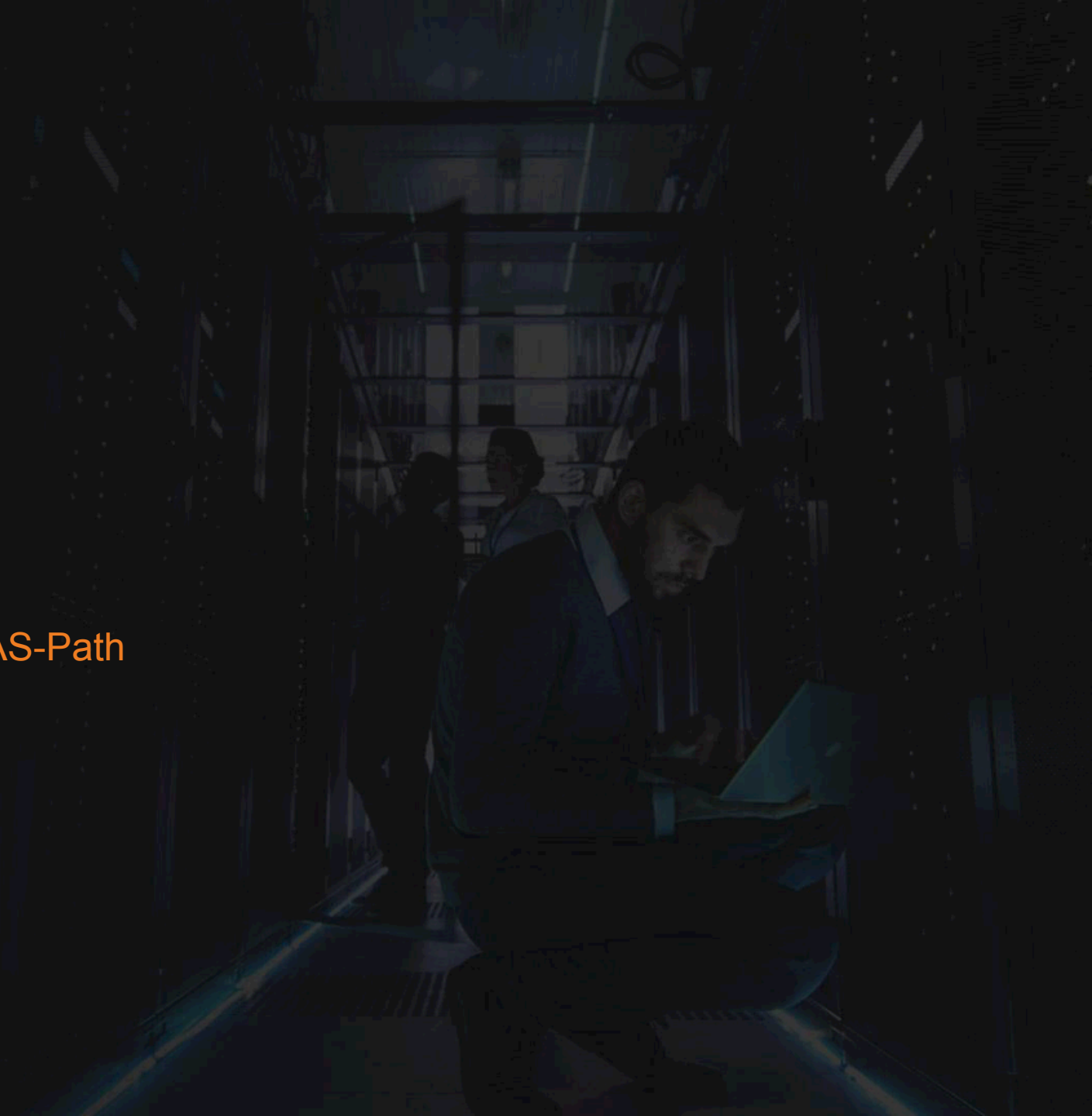
- + AS 100 has multiple peers to AS 200 via R6 and R7. Using Local Preference, modify the network so that R3's peering to R7 is used as the primary exit point for AS 100 to reach the BGP Loopback1 interfaces in AS 200.





BGP Deep Dive

Understanding BGP Bestpath Selection – AS-Path



BGP Problem Statement

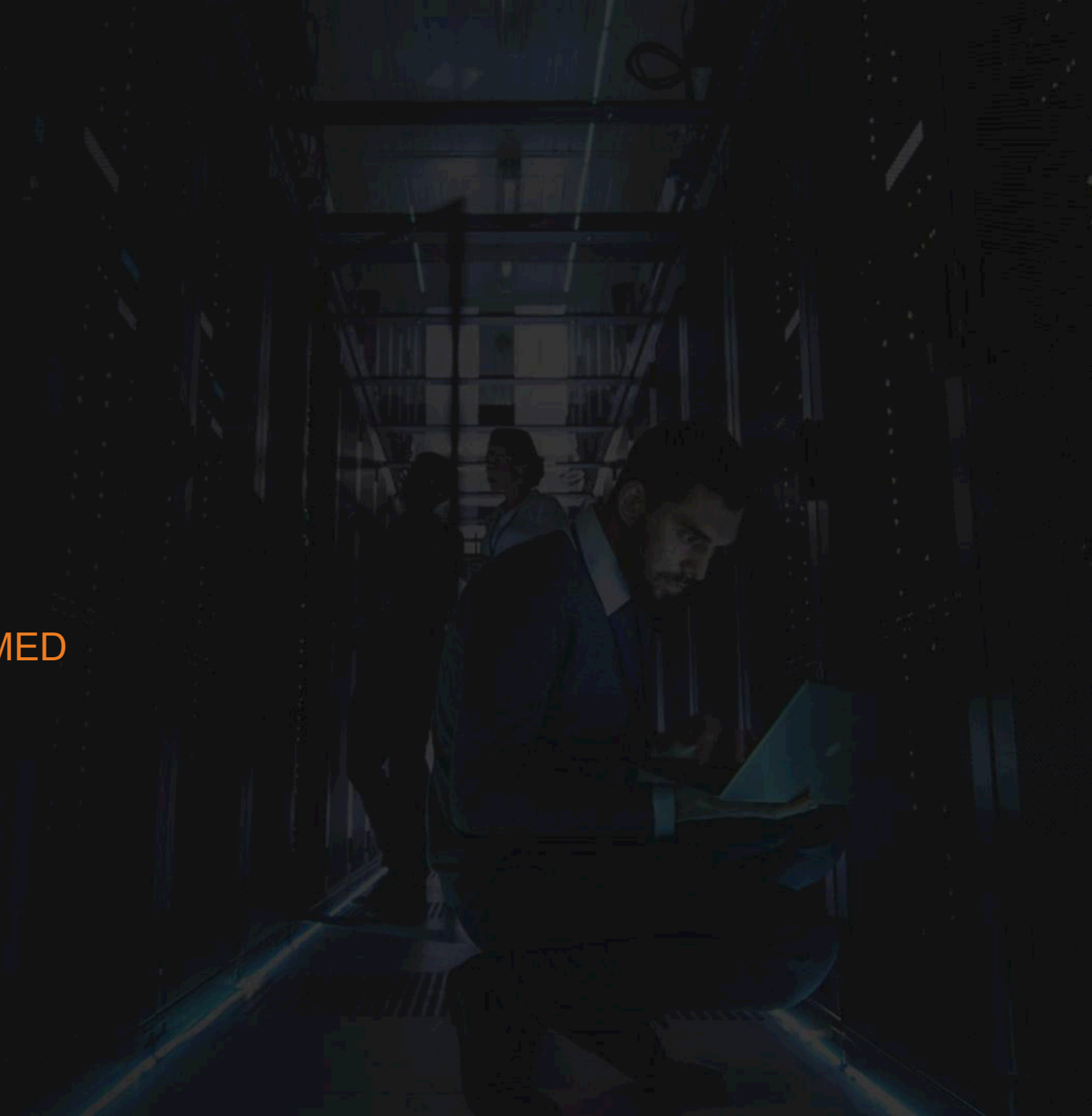
- + AS 100 has multiple peers to AS 200 via R6 and R7. Using AS-Path, modify the network so that R3's peering to R7 is used as the primary entry point for AS 200 to reach the BGP Loopback1 interfaces in AS 100.





BGP Deep Dive

Understanding BGP Bestpath Selection – MED



BGP Problem Statement

- + AS 100 has multiple peers to AS 200 via R6 and R7. Using MED, modify the network so that R6's peering to R1 is used as the primary entry point for AS 200 to reach the BGP Loopback1 interfaces in AS 100.





BGP Deep Dive

Understanding BGP Communities

BGP Problem Statement

- + AS 100 has multiple peers to AS 200 via R6 and R7. Using communities, modify R5 so that AS 200 cannot reach the BGP Loopback1 interfaces in AS 300.





BGP Deep Dive

Understanding BGP Filtering – BGP ORF



BGP Problem Statement

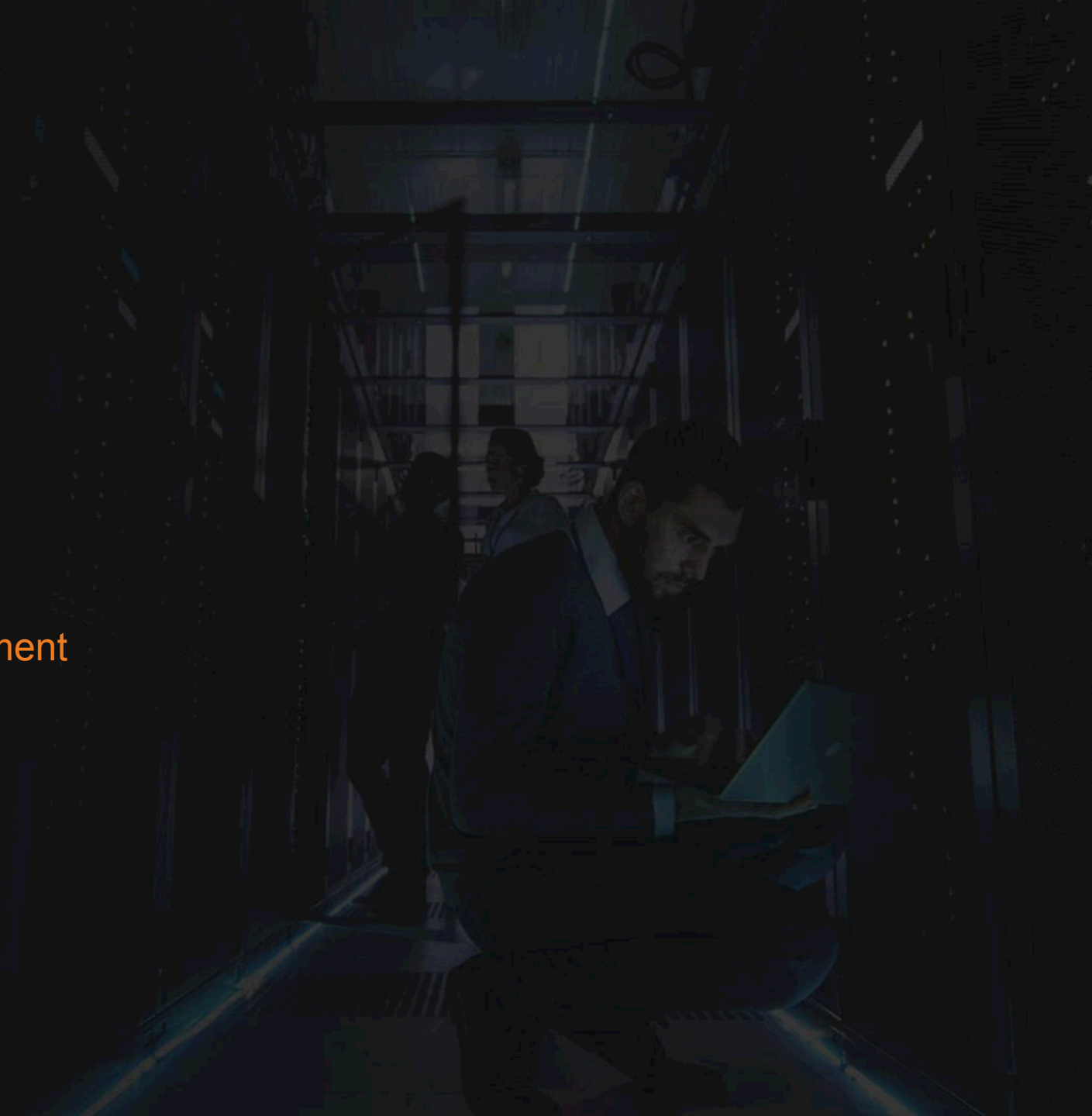
- + AS 300 is a downstream AS from AS 100. Configure BGP Outbound Route Filtering (ORF) so that R5 does not send the BGP Loopback1 interfaces of AS 200 to AS 300. AS 300 should still have reachability to the rest of the prefixes in AS 100.





BGP Deep Dive

Understanding BGP Conditional Advertisement



BGP Problem Statement

- + AS 100 wants to use the link between R3 and R7 as the primary entry point for traffic from AS 200. However, AS 200 is overriding this policy and using the link between R1 and R6 as primary. Using BGP Conditional Advertisement, modify the network so that the R3 to R7 peering is used for all traffic coming from AS 200 to AS 100. If this link is unavailable, traffic should fall over to the peering between R1 and R6.





BGP Deep Dive

Understanding BGP Aggregation

BGP Problem Statement

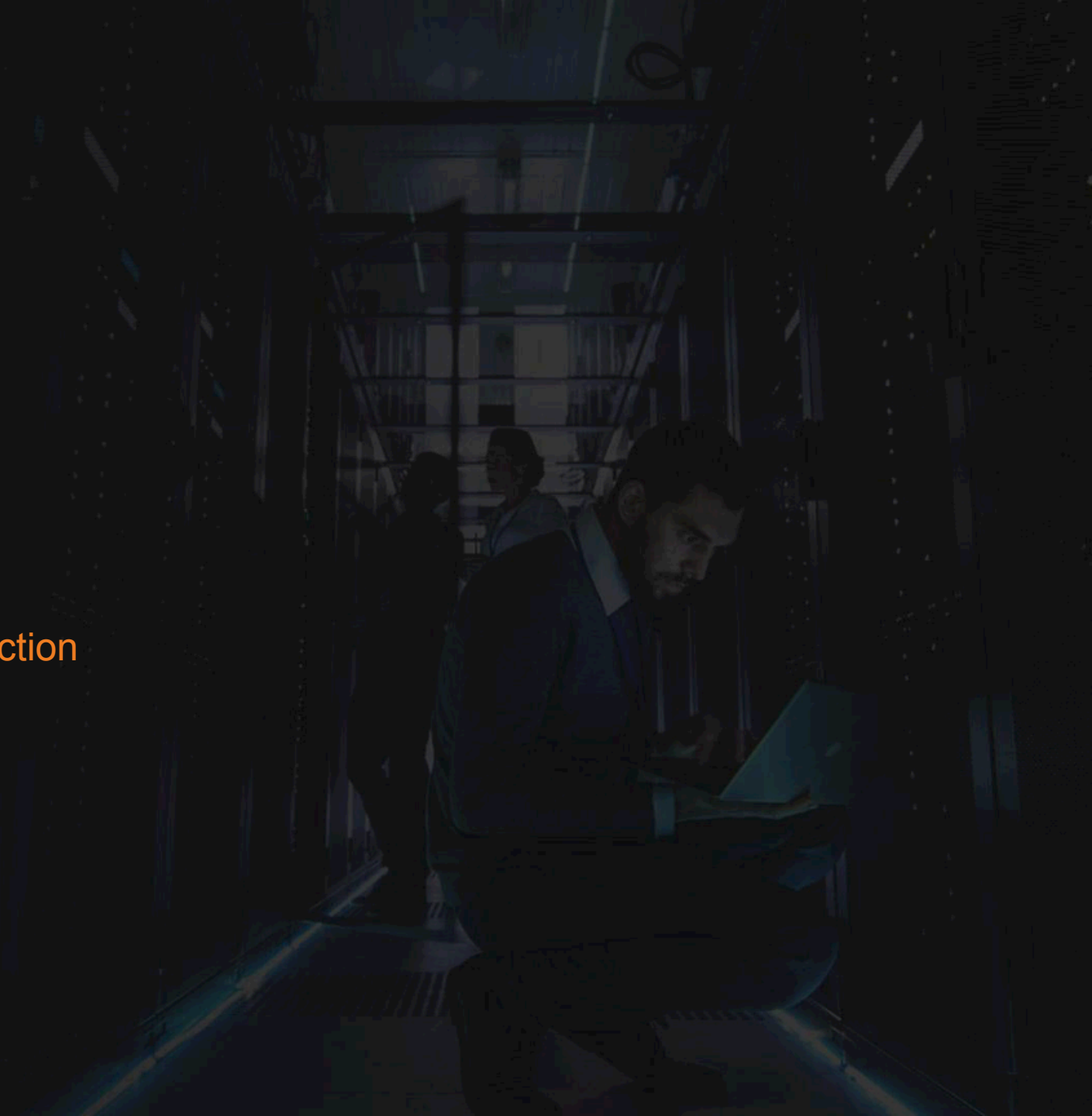
- + AS 100 has multiple peers to AS 200 via R1 and R3. Advertise a single aggregate of the Loopback0 interfaces of AS 100 to AS 200 and verify connectivity. Configure traffic engineering so that traffic from AS 200 to R2's Loopback0 prefers to use the link between R6 and R1, and traffic from AS 200 to R3's Loopback0 prefers to use the link between R3 and R7. If either of these links are down, traffic should reroute through the alternate path.





BGP Deep Dive

Understanding BGP Conditional Route Injection



BGP Problem Statement

- + AS 100 is advertising an aggregate of the 150.1.0.0/16 space to AS 200 via both R1 and R3. Using BGP Conditional Route Injection, configure AS 200 so that traffic from AS 200 to R4's Loopback0 prefers to use the link between R6 and R1, and traffic from AS 200 to R5's Loopback0 prefers to use the link between R3 and R7. If either of these links are down, traffic should reroute through the alternate path.





BGP Deep Dive

Understanding BGP Prefix Independent Convergence (PIC)



BGP Problem Statement

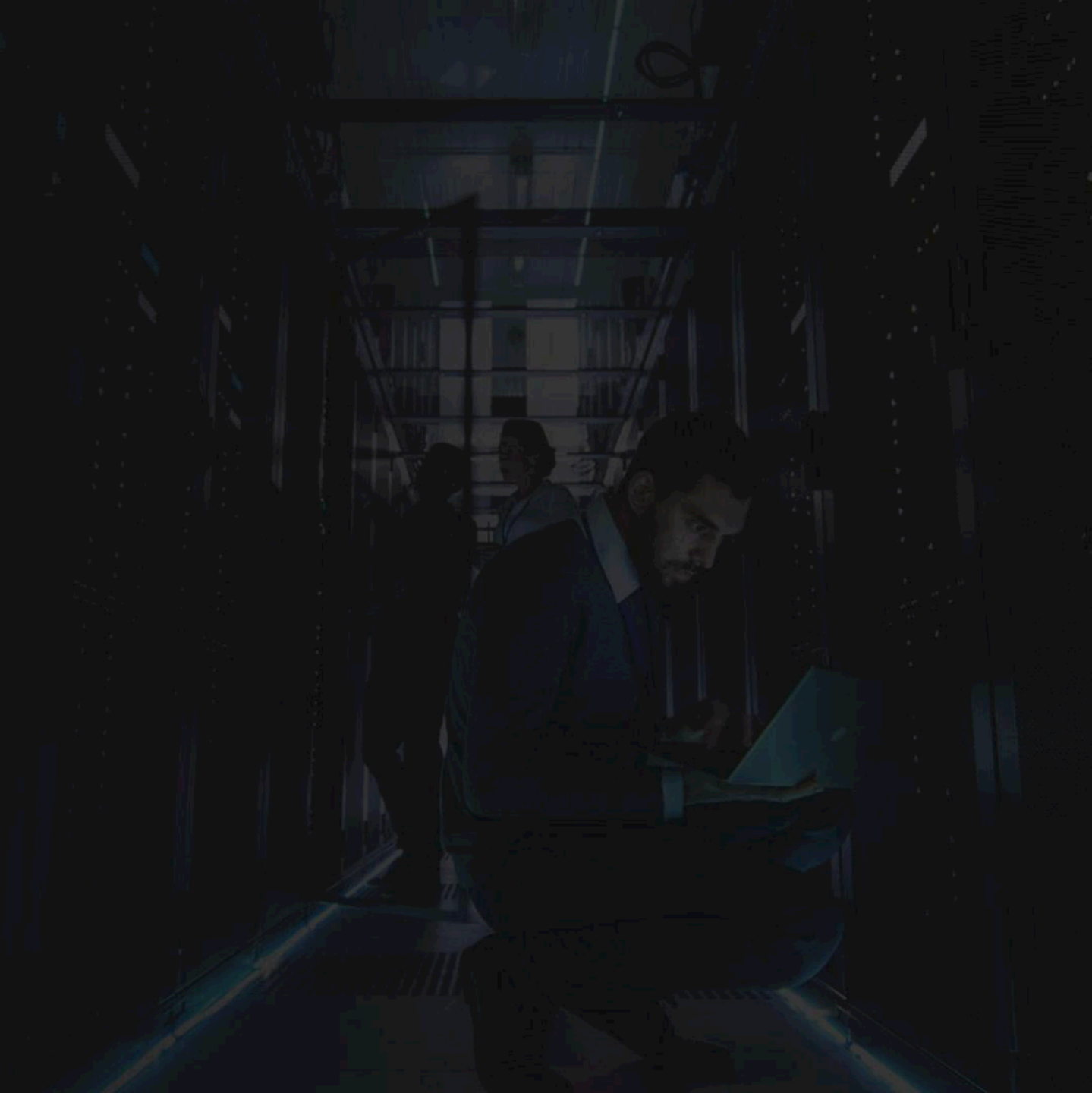
- + AS 200 wants to use the peering between R6 and R1 as the primary path to reach AS 100. Configure a policy so that traffic from AS 200 to AS 100 prefers to use the link to R1, but also so that R6 pre-installs a backup path to AS 100 via R7.





BGP Deep Dive

Understanding BGP Multipath



BGP Problem Statement

- + AS 100 wants to be able to load balance traffic to AS 200 out both peerings from R1 and R3. Modify AS 100 to accomplish this.

