COMPUTER NETWORK'S
ASSIGNMENT- 5

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Aim -

To help understand different network types (internet, intranet, and extranet) and practice simulating them using Packet Tracer.

Theory -

To help understand different network types (internet, intranet, and extranet) and
practice simulating them using Packet Tracer.

The Internet:

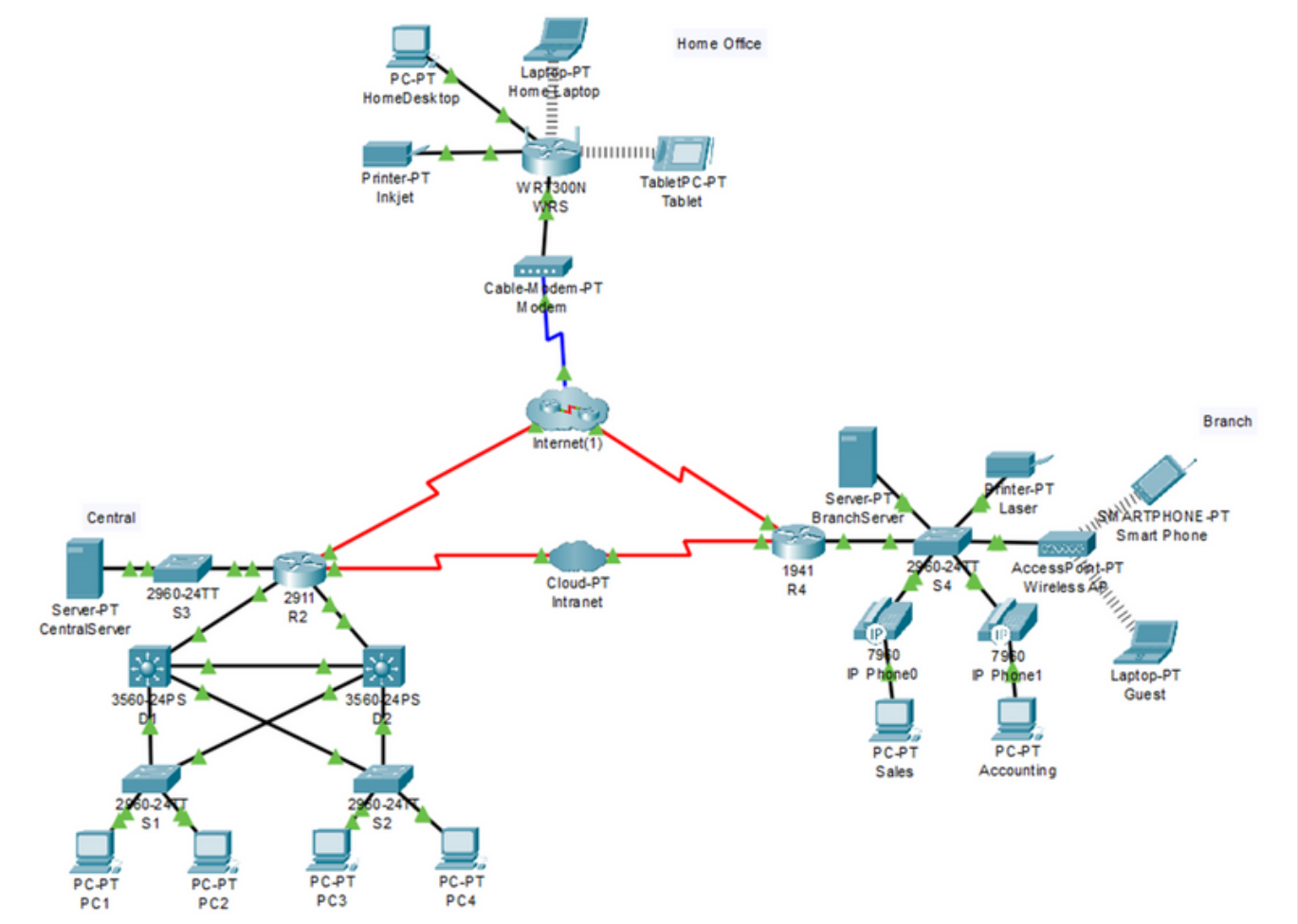
- The internet is a worldwide collection of interconnected LANs and WANs.
- LANs are connected to each other using WANs.
- WANs may use copper wires, fiber optic cables, and wireless transmissions.
- The internet is not owned by any individual or group. The following groups were developed to help maintain structure on the internet:
  IETF
  ICANN
  IAB

Intranet and Extranet:

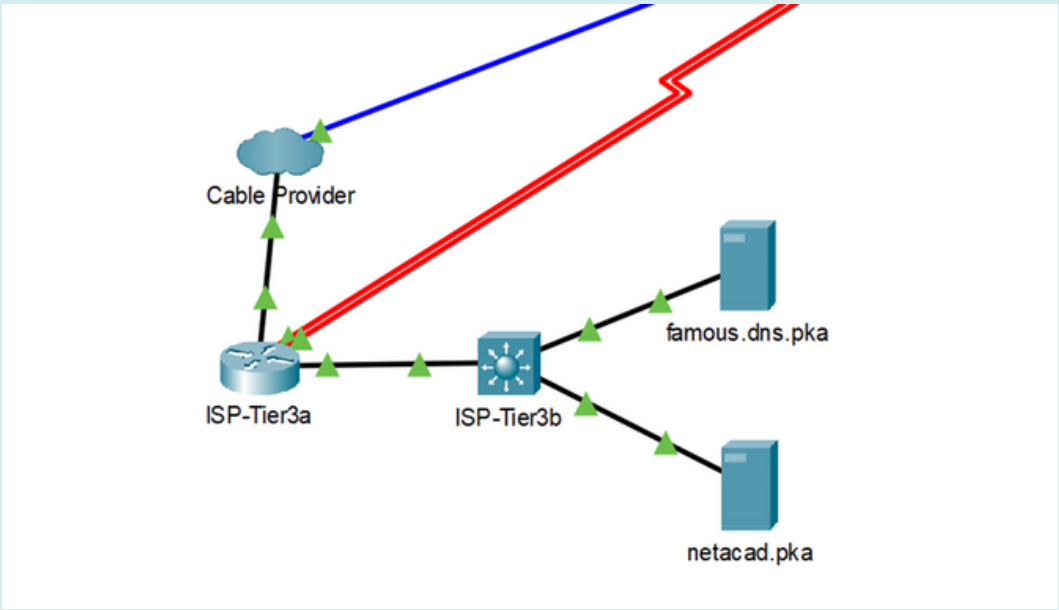
- An intranet is a private collection of LANs and WANs internal to an organization that is meant to be accessible only to the organizations members or others with authorization.
- An organization might use an extranet to provide secure access to their network for individuals who work for a different organization that need access to their data on their network.

Observations :-

Overall Network

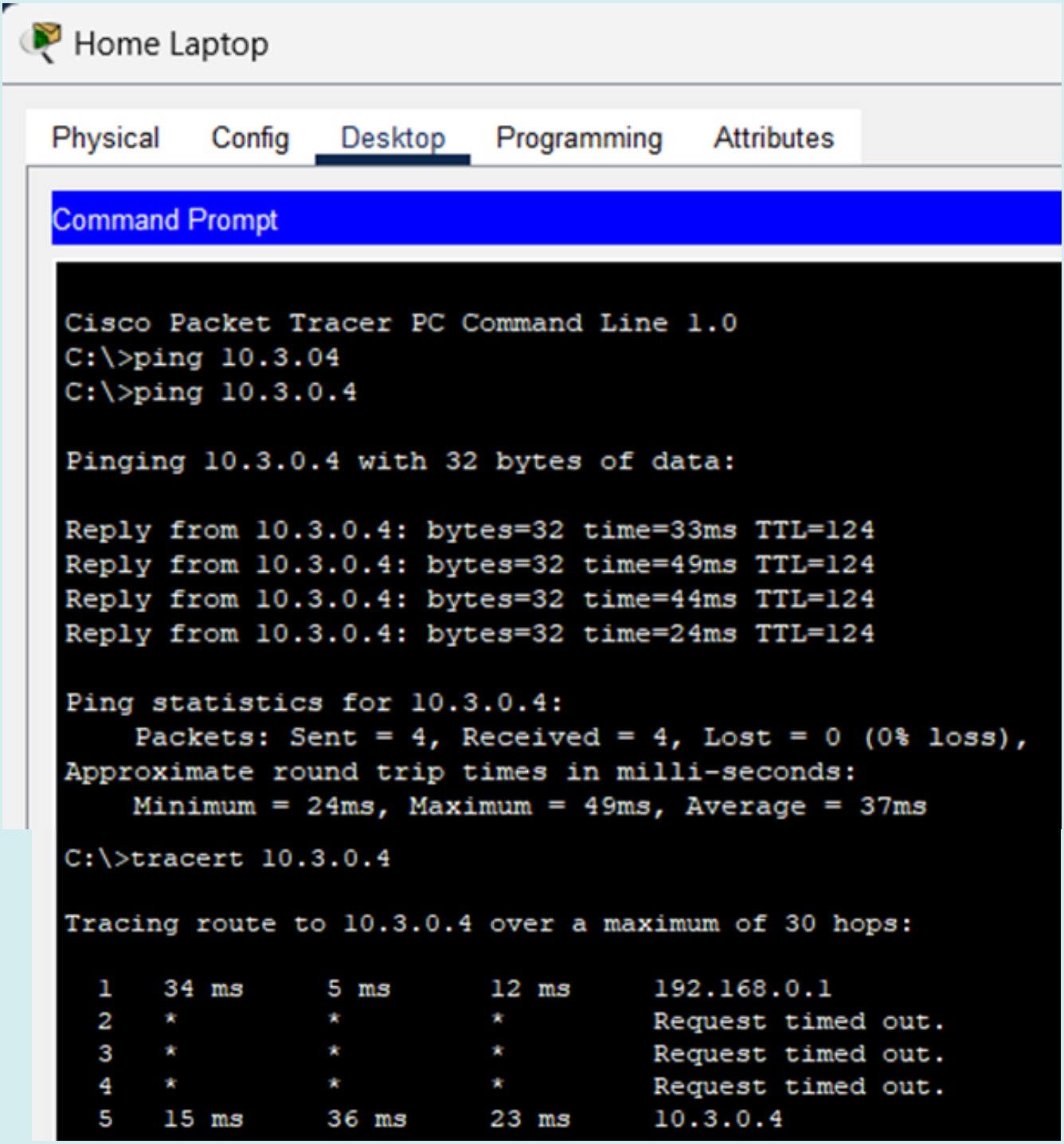


Internet Cluster



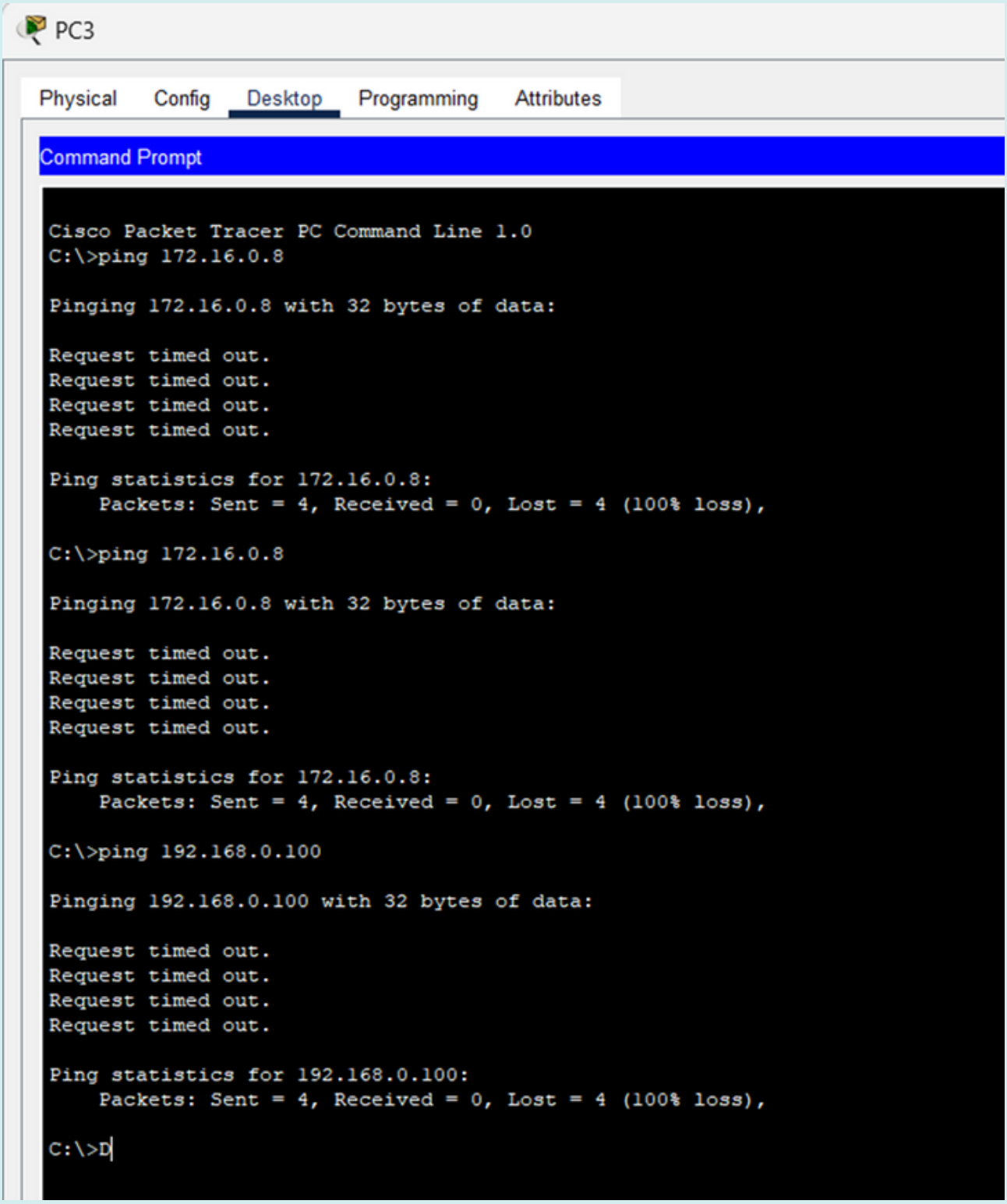
Observations :-

Finding routes from Home computer to PC3



Observations :-

Finding routes from PC3 to Accounting and PC3 to Home Laptop



Self Assessment:-

What are some challenges associated with managing and securing a WAN compared to a LAN?

Managing and securing a WAN presents distinct challenges compared to a LAN due to its broader scope and diverse connections:

- Scale and Complexity: WANs span large geographic areas, making their management and monitoring more complex than the confined nature of LANs.
- Diverse Infrastructure: WANs encompass various technologies like leased lines, satellites, and public internet, demanding expertise in multiple systems.
- Higher Latency and Reliability: WANs' extended distances often result in higher latency and potential reliability issues, necessitating optimized routing and redundancy.
- Security Concerns: WANs involve data transmission across public networks, exposing information to more security threats, necessitating advanced encryption and authentication measures.
- Resource Allocation: Managing bandwidth across distributed locations is challenging, requiring efficient allocation to ensure consistent performance.

List the limitations or constraints that you faced of simulating WAN networks in Packet Tracer?

Simulating WAN networks in Packet Tracer has the following limitations:

- Scale: Packet Tracer is designed for smaller-scale simulations, making it less suitable for accurately replicating the complexity of large WAN environments.
- Realism: It may not fully capture real-world WAN behaviors, such as varying latency and congestion, which are crucial for accurate testing.
- Limited Protocol Support: Some advanced WAN protocols and features might not be supported or accurately represented in Packet Tracer.
- Hardware Emulation: Emulating WAN hardware may not fully replicate the performance and intricacies of actual networking equipment found in WAN setups.

Conclusion:-

the internet functions as a global network of interconnected LANs and WANs, enabled by technologies like fiber optics and wireless transmissions. Its decentralized nature is supported by essential organizations such as IETF, ICANN, and IAB. Intranets provide exclusive networks for internal communication within organizations, while extranets extend controlled access to external collaborators. This intricate landscape showcases the evolution of secure and efficient data sharing on a worldwide scale.

End of Report