Internet Routing

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Background

- Invention of protocols to automate the propagation of routing information (next hop information) and allow new sites to join the Internet and communicate instantly with other sites
- Gateways work in store and forward manner
- Gateway Protocols:

1. Vector Distance Protocols (count-to-infinity problem)
2. Link Status Protocols(less prone to loops)
3. IGP-Interior Gateway protocol(within autonomous systems)
4. EGP-Exterior Gateway Protocol (between autonomous systems)

Protocols

- EGP- Isolates sites (i.e. AS's)
  - Distance Vector Protocol
  - Reachability Protocol
- IGP Protocols:

1. GGP-Gateway-Gateway Protocol (Extra hop problem)
2. RIP-Routing Information Protocol
3. HELLO
4. Butterfly Gateways

- Extensions like split horizon, holddown, modified hop count etc. added to RIP to counter excessive increase in network diameter

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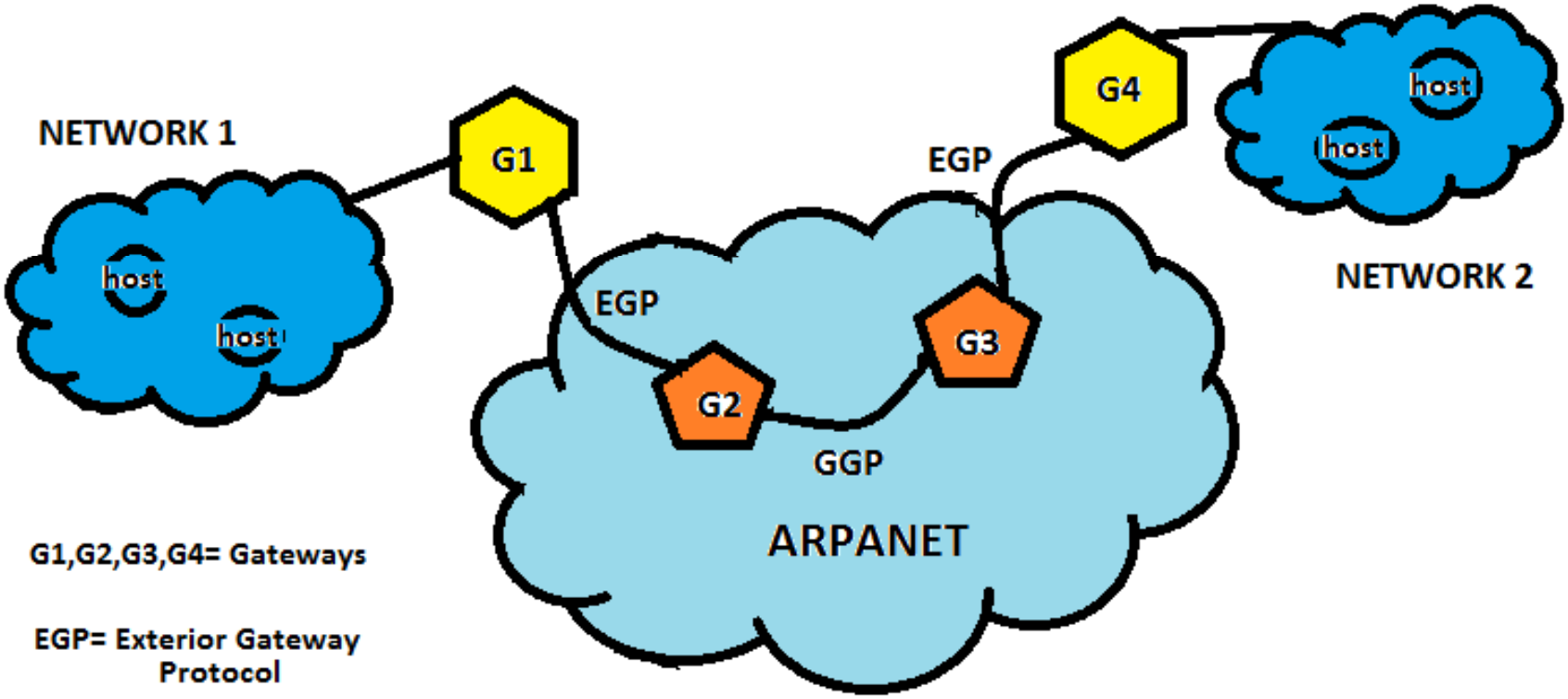

Question

Has the Internet really 'succeeded' by introducing the routing protocols?

- Reachability is NOT the only goal for gateways. Routing should be efficient, adaptive & cost-effective.
- Top levels of hierarchy should function independently of lower levels
- A well defined "hierarchical" topology needed to adapt to future changes in needs like increase in demand or changes of services
- For improved performance a universally accepted EGP protocol supported by all AS border gateways.