Packetizer®

A resource for packet-switched conversational protocols

# Distributed, Globally Scalable VoIP Communication

## *Using ITU-T Recommendation H.323*

May 1, 2006

# Key H.323 Points

- H.323 terminals are “intelligent” devices
- H.323 calls may be
  - Peer to peer
  - Routed through a Gatekeeper
- H.323 terminals or Gatekeepers may resolve address
  - Gatekeepers are the more logical place
  - Gatekeepers can also facilitate exchange of presence information

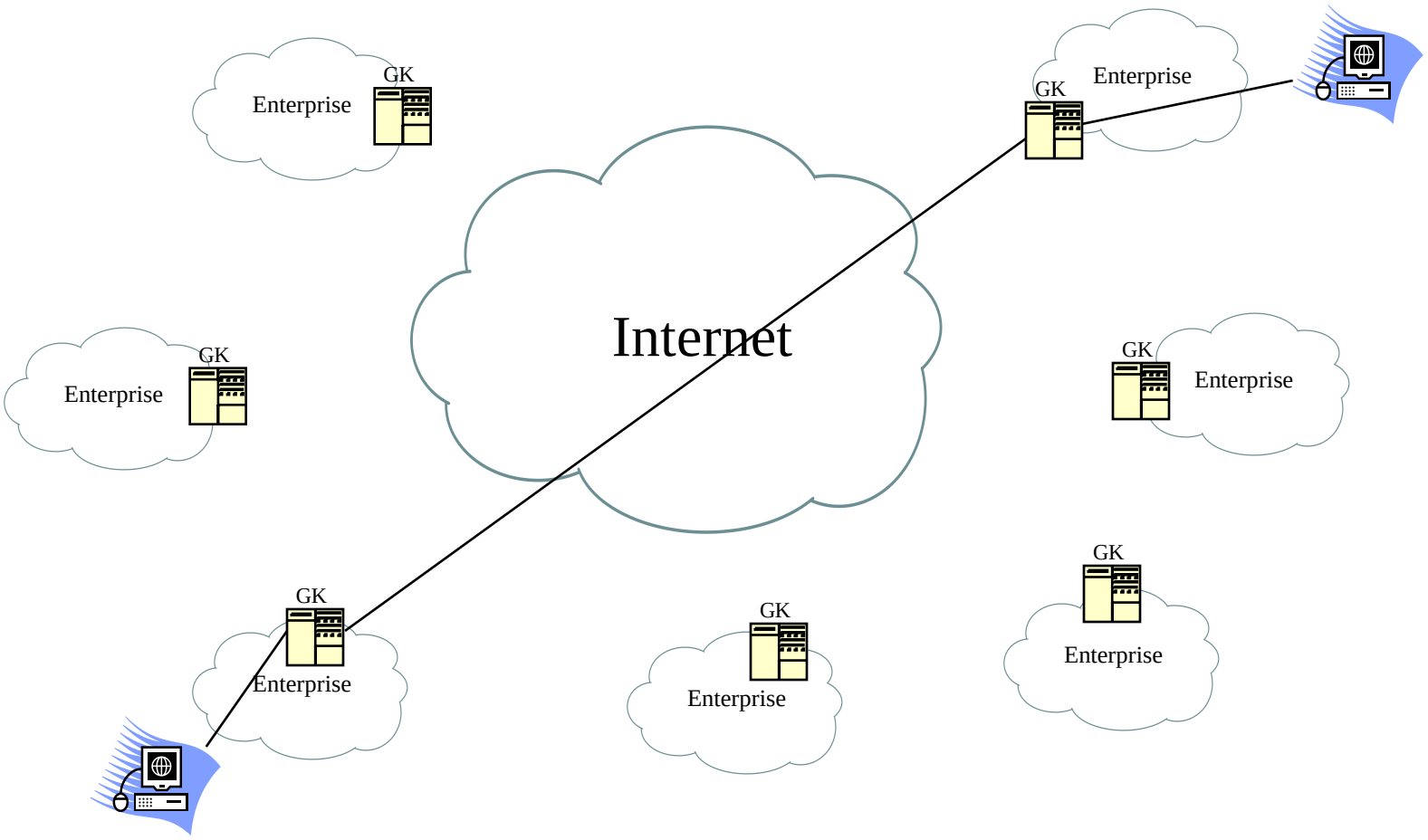
# Designed to Scale

- Gatekeepers may communicate with
  - Known peer Gatekeepers
  - Gatekeepers discovered through DNS
- Routing a call is very “light-weight”
  - H.323 terminals ask “where is the called device”?
  - The Gatekeeper resolves the address and provides that to the endpoint

# Designed to Scale (cont)

- Gatekeepers route calls when
  - It is necessary to traverse NAT/FW devices
  - The Gatekeeper is used for call accounting
  - The Gatekeeper is needed to provide network services
- Otherwise, calls are placed peer to peer
- In the worst case, calls are routed by
  - The calling terminal's Gatekeeper
  - The called terminal's Gatekeeper
- Media flows directly between terminals, but may be routed to traverse NAT/FW devices

# The “H.323 World”



# Finding Remote Gatekeepers

- Gatekeepers may send Location Request (LRQ) messages to peer gatekeepers
  - Useful for “internal” routing within an enterprise or service provider environment
  - Gatekeepers may “proxy” LRQ messages for other gatekeepers
- Gatekeepers may query DNS to discover the location of a remote Gatekeeper
  - Globally scalable
  - Queries similar to finding a web site
  - Phone numbers work using ENUM

# Configuring DNS

If you have a single Gatekeeper, tell the world to send it all calls:

```
_h323cs._tcp            IN      SRV     0 0 1721 gk.packetizer.com.
```

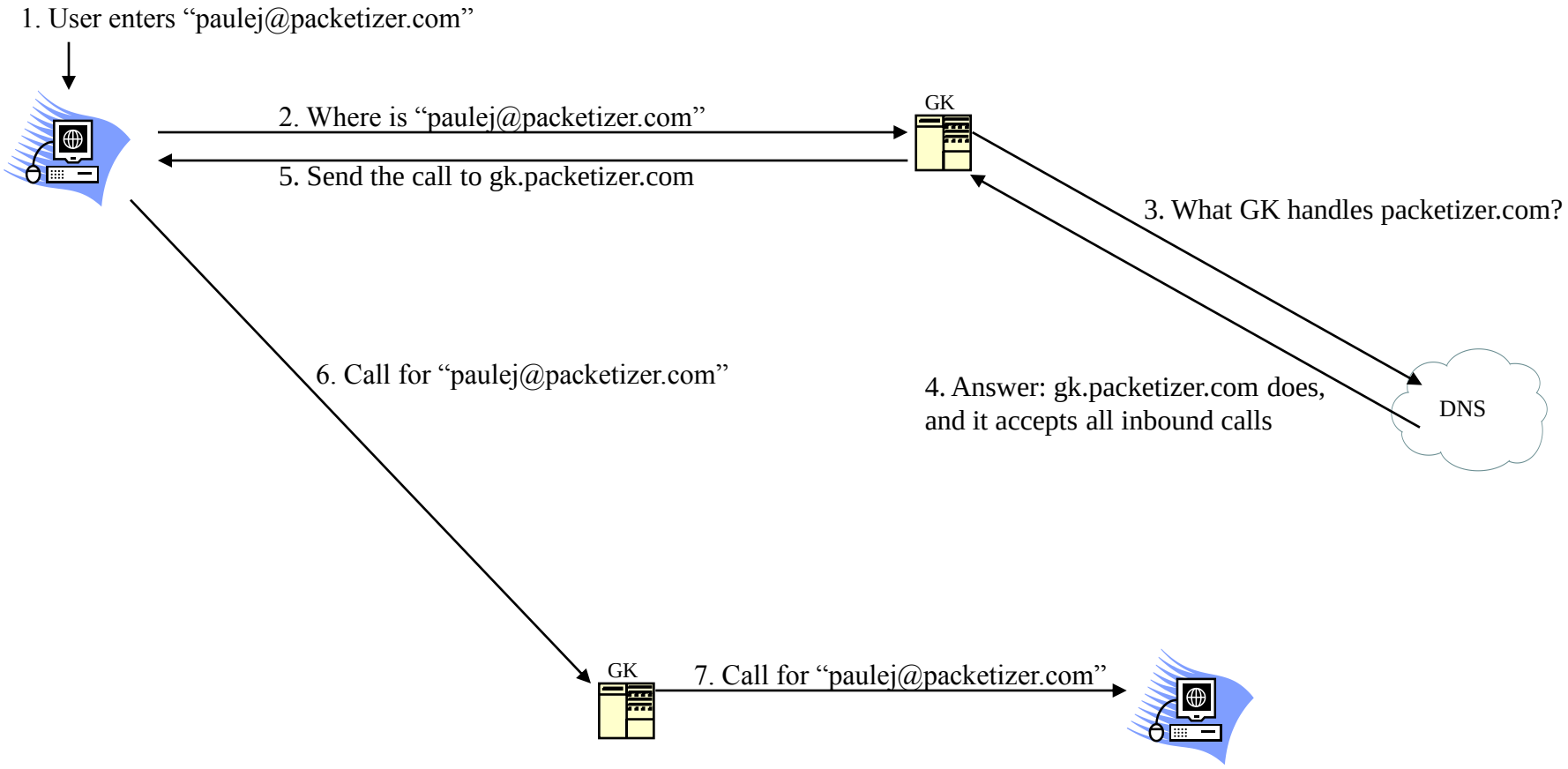
Larger enterprises may have multiple gatekeepers and may wish to optimize call routing:

```
_h323ls._udp            IN      SRV     0 0 1719 gk.packetizer.com.
```

# Steps to Routing a Call

- User enters “paulej@packetizer.com”
- Terminal asks its gatekeeper, “how do I reach paulej@packetizer.com?”
- The Gatekeeper queries DNS and learns that calls should be routed to gk.packetizer.com
- The Gatekeeper returns the IP address of the remote Gatekeeper (or, optionally, it’s own address in order to facilitate NAT/FW traversal)
- The call is established

# Routing a Call



# Globally Scalable

- H.323 is globally scalable
- System is entirely decentralized
- Enterprises may manage their own communication infrastructure
- Service providers may provide H.323 Gatekeeper functionality for customers spread around the globe