



Computing Center of Max-Planck-Society and
Institute of Plasmaphysics

An OpenSource Gatekeeper

GNUGK in practice

18th APAN Meeting/QUESTnet 2004
Cairns, Australia
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Outline of talk

- GnuGK in practice
 - Why GnuGK?
 - A few features
 - Gatekeeper & Proxy
 - Authentication schemes
 - GDS and use of ViDe.NET
 - Accounting
 - Some other features
 - Install and example config (...brief explanation...)



Why GnuGK?

- Linux
 - Linux is free 😊 → GPL
 - 99% of all server in Computer Center are Linux/Unix, and Linux seem more reliable than other OS's
- OpenSource
 - Several versions are available for Linux, Windows and MACs
 - GnuGK is OpenSource & GPL → its free
 - We can change the code/add features if we want to
- Special features
 - Full working gatekeeper
 - Has Proxy (NO, not like a SIP proxy...will be explained later)



A few features

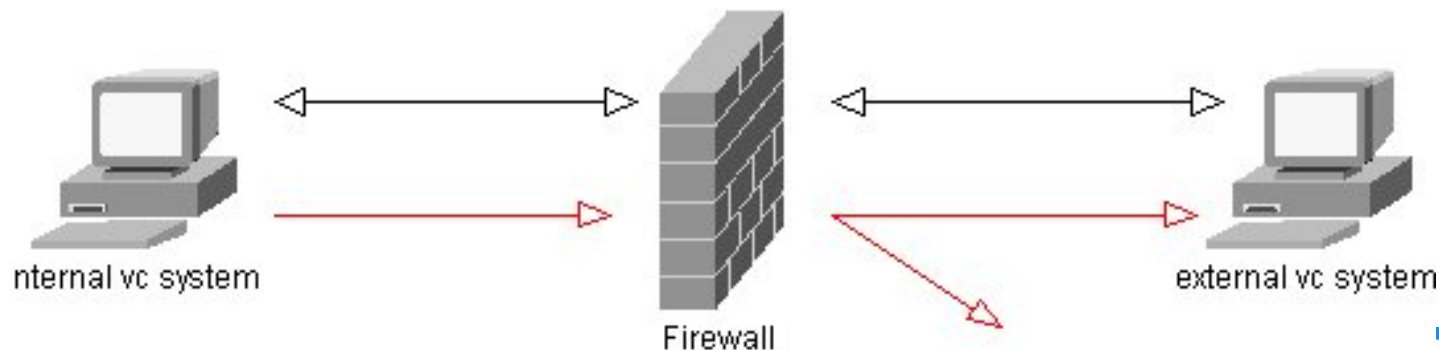
- Gatekeeper
 - GnuGK is a full H.323 compatible Gatekeeper
 - Supported H.323 version relies on usedopenh323 library
 - Routed or direct mode available
- Proxy
 - Proxy is used to overcome firewall issues....next slide
 - Proxy can “proxy” Control Channel (TCP) as well as audio/video streams (UDP)...next slide
 - Proxy functionality can be activated, deactivated or partially deactivated





A few features

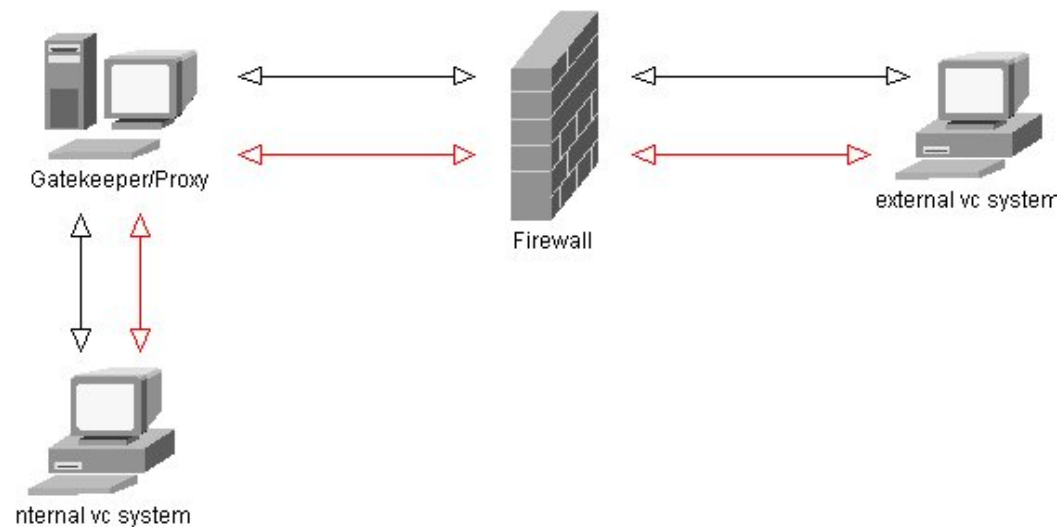
- Gatekeeper/Proxy
 - Blocked communication or what happens if...
 - Setup (TCP) (often) can pass firewall
 - Standard scenario: External client (unprotected) gets audio and video, but internal client (protected) gets just a black screen. Used ports are negotiated dynamically during the setup process. **How do you open ports if you don't know them?**





A few features

- Gatekeeper/Proxy
 - H.323 Videoconferencing/VoIP system just communicate with the Proxy
 - ALL data are transmitted via the proxy → FW just open for Proxy/Proxy in DMZ





A few features

- Authentication schemes
 - GnuGK offers several authentication methods
 - File authentication
 - Config file contains entries for hosts
 - Radius authentication
 - mySQL authentication
 - H.350 authentication (LDAP scheme)....next slide
 - Prefix authentication
 - IP authentication





A few features

- H.350 authentication
 - H.350 is new ITU standard since 10/03
 - Based on a commObject architecture, invented by the VidMid-VC group
 - H.350 is a LDAP extension (LDIF files can be downloaded at LINK)
 - Current H.350 ldif files available for H.323, H.320, SIP, H.235, and other generic protocols
 - Can be used for authentication and as phonebook/userdirectory → local use only
 - A directory of directories can be created → globally (see SURFNet)
 - ...there is much more to fill a whole lecture 😊





A few features

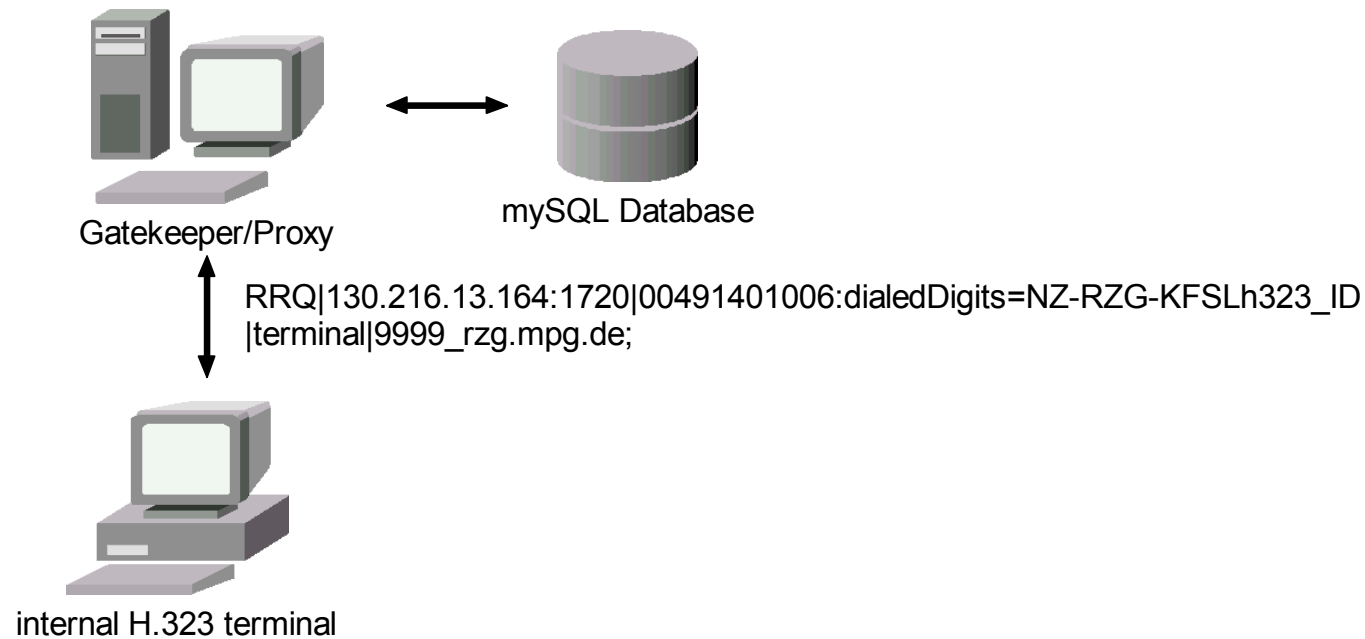
- H.350 authentication
 - Client sends registration request (RRQ) to gatekeeper
 - Gatekeeper looks up H.350 data to proof registration
 - If Gatekeeper confirms registration, the clients gets a registration confirmed (RCF) messages, otherwise a registration reject (RRJ)





A few feature

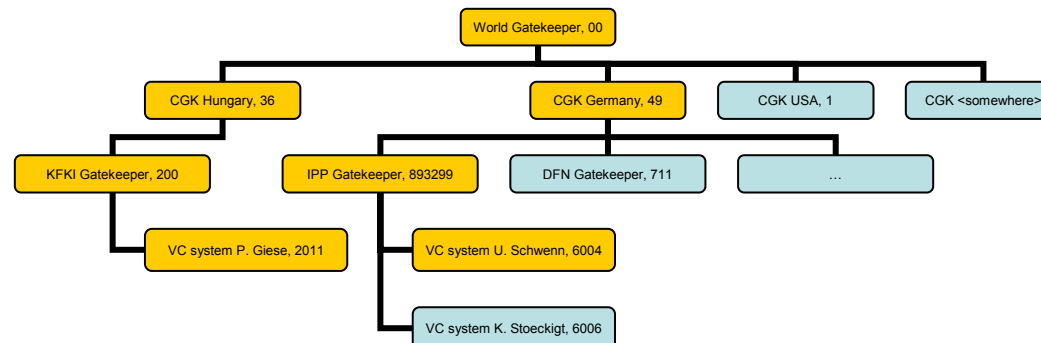
- H.350 authentication





A few features

- GDS & ViDe
 - GnuGK can be fully integrated into the existing GDS/ViDe infrastructure
 - (Multiple) Zone can be handled
 - Sub zones, e.g. Organizational zones can be configured





A few features

- Several different accounting methods are available
 - Simple FileAcct
 - Accounting information are stored in a plain text file

CDR|CallNr.|<trash>|Duration|StartTime|EndTime|CallerIP|EndpointIdentifier|
CalleeIP|EndpointIdentifier|CalleeE164|CallerE164:H323Alias|GatekeeperID

- Radius accounting
 - Accounting data are send/stored in Radius
- MySQL accounting
 - Accounting data are stored in MySQL database





A few features

- T.120 proxy
- Used port range can be limited (H.245, T.120, RTP) → this limit max. amount of concurrent calls and may cause problems with MCUs
- LoadBalancing (several/alternative GKs, multiple CPUs)
- CallQueueing (with third party tool)
- Call forwarding
- Supports NATed endpoints
- Limit call regions
- ...



Install and example config

- From 10/02 to 02/04 the following system was used in MPG
 - Pentium III, 1.6GHz, 256MB Ram, running SuSE Linux 7.3
 - Accounting was not used
 - Authentication via IP/Prefix combination
- New system since 02/04
 - Quad Intel Xeon, 1.5 GB Ram, running RedHat 9.0
 - Accounting is prepared but not used
 - Authentication via MySQL database → Migration to H.350 expected in 10/04





Install and sample config

- ...a bit statistics...
 - Since 10/02 the system crashed 4 times
 - Power failure in building
 - Kernel panic
 - Power supply failed
 - Final crash → hard drive failure
 - Used for all calls
 - ~ 1000 calls per month
 - ~ 120 – 150 GB traffic per month
 - Clients
 - ~ 120 clients (many within Germany, and a few all over Europe, some in the US (Guests) and Japan (Guests))





Install and sample config

- Download openh323 library as well as pwlib library for free from <http://www.openh323.org>
- Download gnugk for free from <http://www.gnugk.org>
- Export path according to documentation on both web pages and start compiling....precompiled binaries are also available
- Configure the system and you can start



Install and sample config

- Plain text file
 - Simple config
- ```
[Gatekeeper::Main]
Fourtytwo=42
Name=name.domain
EndpointIDSuffix=_domain
TotalBandwidth=-1 // no bandwidth limitation

[RoutedMode]
GKRouted=1
H245Routed=1

[Proxy]
Enabled=0 // disabled
```





# Install and sample config

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- Full proxy + mysql authentication

```
...
[MySQLAliasAuth]
;
;SELECT ip FROM vcsys.systems WHERE
IDField = %0:h323_ID
;
Host=localhost
Database=db
User=dbuser
Password=dbpasswd
Table=dbtable
IDField=alias
IPField=ip
ExtraCriterion=Kind > 1
CacheTimeout=300

...
[Gatekeeper::Auth]
MySQLAliasAuth=required;RRQ
default=allow
```





# Install and sample config

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- Use with country GKs

```
...
[RasSrv::Neighbors]
CGK=194.95.240.3:1719;*;
...
```





# Install and sample config

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- ...see config file...



# Acknowledgement

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More Information available at:  
<http://www.rzg.mpg.de/vc/>