# A HTTP based technique for streaming GNSS data over the Internet

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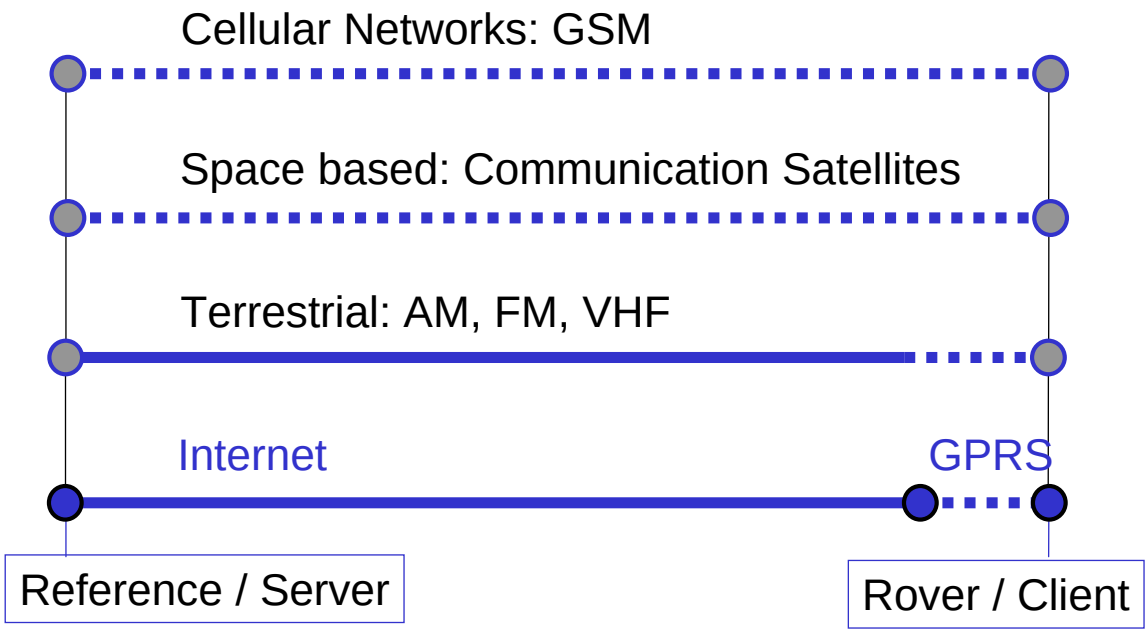


## Service Provider

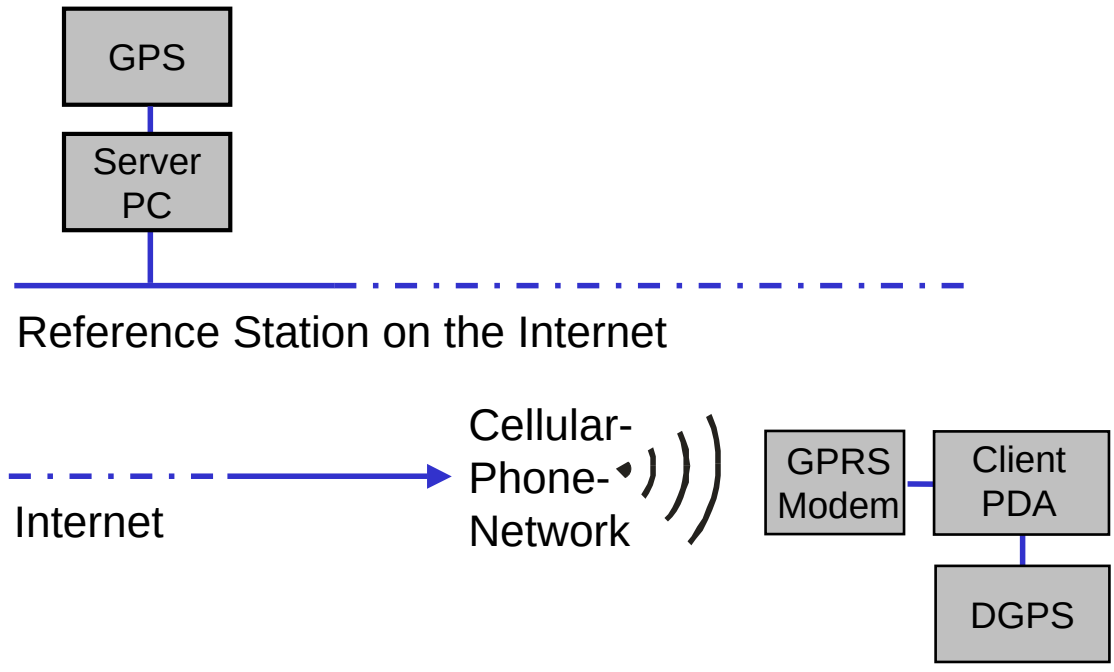
- Using a global communication infrastructure
- No frequencies / satellite transponders / access server
- Very low bandwidth (1000 times less than Internet Radio)-> inexpensive

## Service User

- Various Access Networks: (Mobile Phone, Satellites, LAN, …) -> global access
- Very low bandwidth -> inexpensive







- “Internet Server” applications are difficult to protect
- Usage of various port numbers for different data types are critical with respect to Firewalls/Proxy Server
- DGNSS Internet applications best based like HTTP/FTP etc. on one single port
- Network Congestion Management



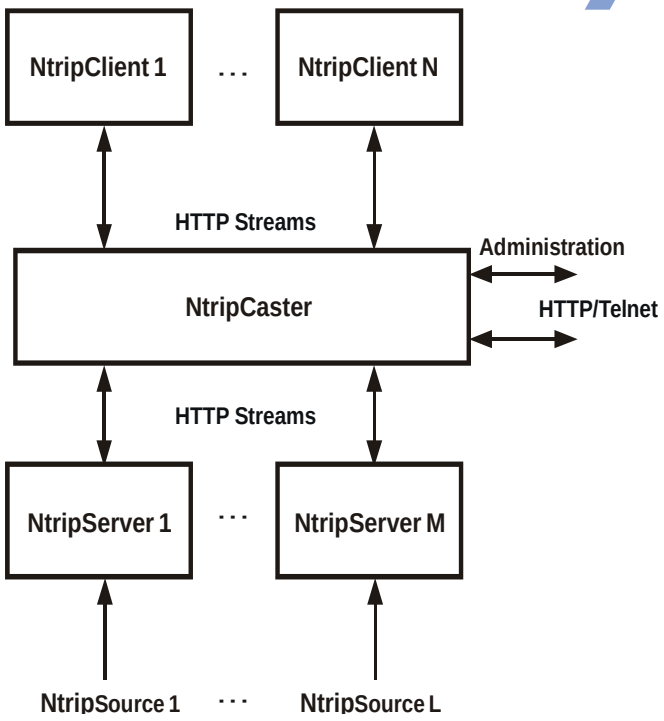


## Networked Transport of RTCM via Internet Protocol

- HTTP-based system for streaming GNSS data over the Internet
- Based on an HTTP Internet Radio technology
- Open documentation

## NTRIP

- HTTP application layer on top of TCP/IP
- NtripCaster/NtripClient/NtripServer communication handled through one single port
- NtripCaster is the only "Internet Server"
- Source Table transmission
- Data-streaming access with selective request (Source ID)

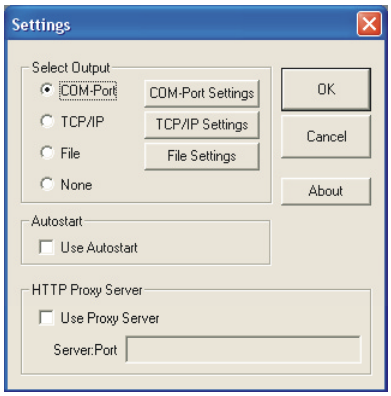


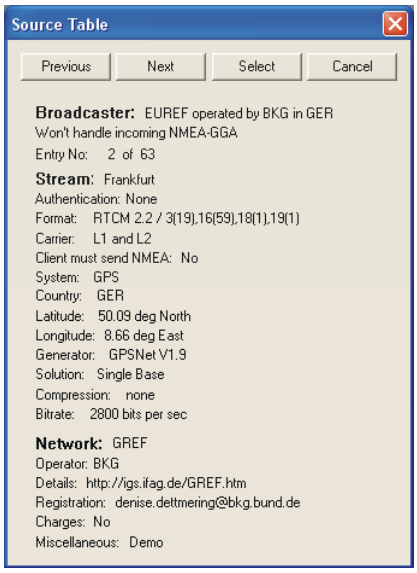



## NTRIP

- NtripServer, NtripServerCMD (Windows 98/NT/2000/XP)
- NtripClient, GNSS Internet Radio (Windows 98/NT/2000/XP, Windows-CE
- Ntrip Linux Client (Linux)
- NtripCaster (Linux)
- Download: http://igs.ifag.de/index_ntrip.htm


GNSS Internet Radio
Broadcaster
Settings
START
STOP
Source Table
Bytes 0
Select Network
GREF
Select Stream or Update
Frankfurt/RTCM 2.2/GPS/GREF
Adjust Settings or press START.


Settings
Select Output
COM-Port
TCP/IP
File
None
COM-Port Settings
TCP/IP Settings
File Settings
OK
Cancel
About
Autostart
Use Autostart
HTTP Proxy Server
Use Proxy Server
Server:Port


Source Table
Previous
Next
Select
Cancel
Broadcaster: EUREF operated by BKG in GER
Won't handle incoming NMEA-GGA
Entry No: 2 of 63
Stream: Frankfurt
Authentication: None
Format: RTCM 2.2 / 3(19),16(59),18(1),19(1)
Carrier: L1 and L2
Client must send NMEA: No
System: GPS
Country: GER
Latitude: 50.09 deg North
Longitude: 8.66 deg East
Generator: GPSNet V1.9
Solution: Single Base
Compression: none
Bitrate: 2800 bits per sec
Network: GREF
Operator: BKG
Details: http://igs.ifag.de/GREF.htm
Registration: denise.dettmering@bkg.bund.de
Charges: No
Miscellaneous: Demo