Federal Agency for Cartography and Geodesy

EPN real-time activities

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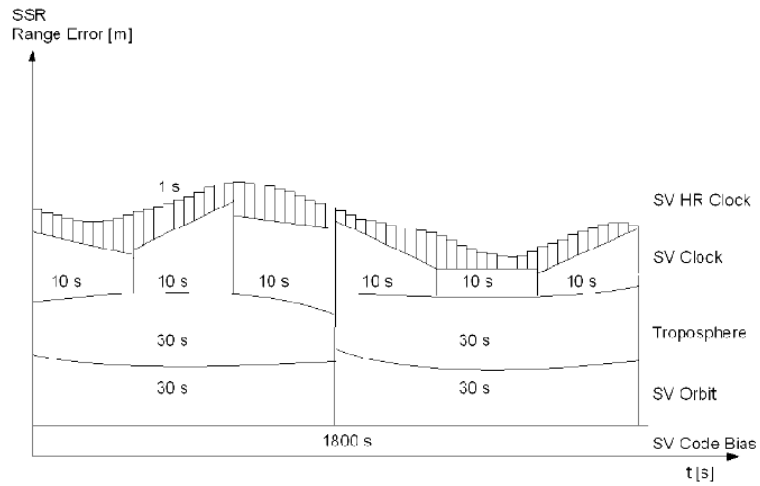
EPN RT - network

- **New or changed EPN RT data streams since last TWG**
  - **LAMA (RTCM 3.0)**
  - **OSLS (RTCM 3.0)**
  - **STAS (RTCM 3.0)**
  - **SULP (RTCM 2.3)**
  - **TERC (RTCM 3.0)**
  - **TRDS (RTCM 3.0)**

RT general activities

- **RTCMv3 new messages for satellite clock and orbit corrections under development and discussion**
  - **Message type 1057: GPS orbit corrections to BRDC**
  - **1058: GPS clock corrections to Broadcast Ephemeris**
  - **1059: GPS code biases**
  - **1060: combined orbit and clock corrections to GPS BRDC**
  - **1061: GPS User Range Accuracy**
  - **1062: high-rate GPS clock corrections to BRDC**
  - **1063-1068: same for GLONASS**



RT general activities

- **BKG/TUP (GPS; GPS+GLO), DLR and GEO++ currently broadcasting selection of these messages**
- **Orbit & clock combination in Post-Processing**
  - **with contributions of BKG (2x), DLR, ESA (2x), NRCan, and GMV**
  - **RMS of 0.2 ns between RT and IGR clocks**

➢ Action Items from last TWG

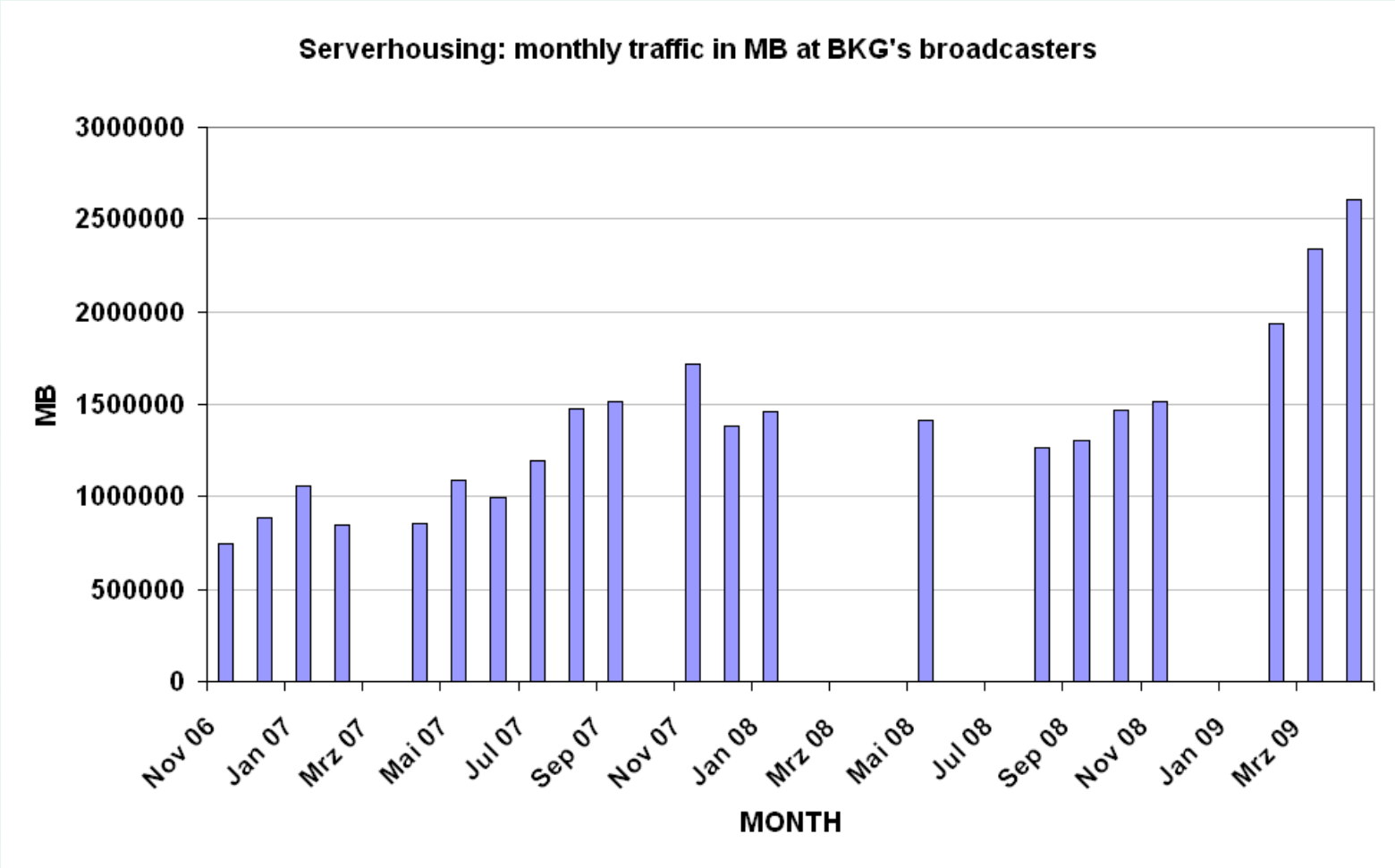
- **Include section „Objectives“ with link to draft paper √**
- **More details for „Call for Participation“ items √**
- **Improved version to circulate among TWG members √**
- **EUREF mail pointing to the new SP/ new webpage (√ March, 13 (4259))**

➢ Call for participation

- **Re-dissemination of GNSS real-time data and products in Europe via NTRIP Broadcasters**
- **Validation of clock and orbit correctors to Broadcast Ephemeris**
- **Backup for all critical real-time service components**

EPN RT - usage

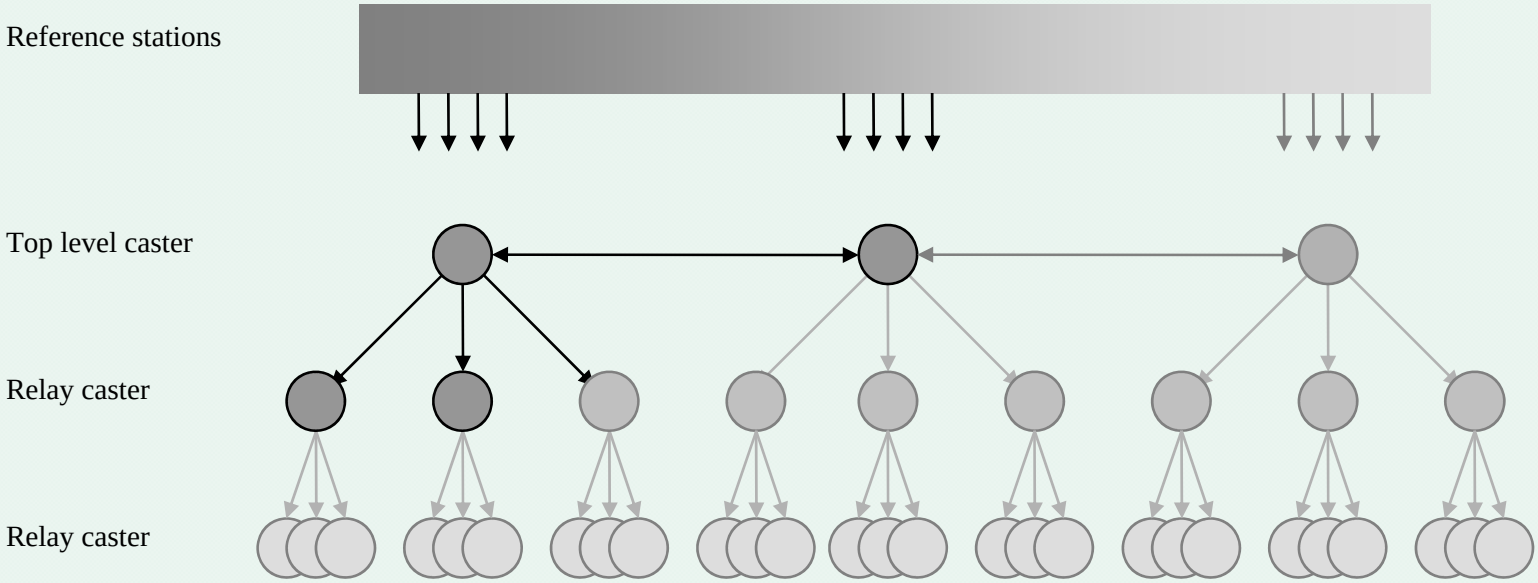
- **Number of registered users since last TWG: +60**
- **Data volume (up-, download) in MB**



➢ Dissemination concept and guidelines

Objectives ... 1
Status of usage ... 1
Structure of NTRIP broadcaster network ... 1
Top-level NTRIP broadcasters ... 1
NTRIP Caster relays ... 2
Authorization procedure ... 2
Authorization policy ... 3
Requirements for operating an NTRIP Broadcaster in support of IGS/EUREF ... 3

➢ Dissemination concept and guidelines



➢ Dissemination concept and guidelines

- Minimization of “single point(s) of failure”
- Targets for the required capacity of a broadcaster (bandwidth, data volume, software, hardware, costs, etc.)
- Estimation of evolution for the next few years
- Coming up with a number of necessary broadcasters to fulfil the needs of the community for the next years (avoiding the need for third-level?)
- From “single station – single stream” to “single station – multiple streams” (receiver software, internet connection, etc.)
- Starting with from “single caster – multiple (relay) casters”