KT’s GiGA LTE
- Mobile MPTCP Proxy Deployment

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KT started launching mobile MPTCP proxy service in commercial since June 2015

- **GiGA LTE (a.k.a., GiGA Path, mobile MPTCP proxy)**
  - Premium service providing the fastest mobile data speed (theoretically LTE + WiFi combined giga bps)
  - Deploy mobile MPTCP proxy gateways w/ UE support (national-wide LTE/3G and public/private WiFi coverage)
  - Collaboration with handset vendors (Samsung and LG electronics) : now have 11 smartphone models in service
  - Technology transfer : exported to other country, e.g., Turk Telekom’s "GiGA 4.5G" in service since Apr. 2016

※ Theoretical maximum speed. It may vary according to network conditions.
**Deployment status**

Both mobile MPTCP proxy gateway and UE are ready to work for every applications

- **Protocol and basic functionalities**
  - Ported MPTCP kernel v0.89 → v0.90 from multipath-tcp.org (compatible with MPTCP WG rfc 6824)
    - 2 subflows maintained per session: LTE for MP_CAPABLE and WiFi for MP_JOIN
    - Default packet scheduler with fullmesh path manager
    - Well known proxy protocol basis: SOCKSv5
    - UE’s traffic redirected to the GW (both up/downlink, and UDP as well)
  - Turns on “GiGA LTE” button, that’s all subscribers to do
    - All application using TCP works via mobile MPTCP proxy
    - Subscriber should have billing plan required for GiGA LTE service

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<th>MA-UE (mobile MPTCP handset)</th>
<th>MA-GW (mobile MPTCP proxy gateway)</th>
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<td>(1) UE UX/UI: service scenario, on/off GUI</td>
<td>(1) Protocol Relay: MPTCP-to-TCP session relayed forwarding</td>
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<td>(2) Proxy Agent: traffic redirection to MA-GW</td>
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<td>(3) MPTCP kernel: support MPTCP/IP networking stack</td>
<td>(3) Packet Scheduler: scheduling packet according to nw env</td>
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<td>(4) Path Monitoring: detect and bypass when WiFi path going down</td>
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**Diagram**

![Diagram](image)
Mobile MPTCP Proxy System Deployment

How GiGA LTE works? Explicit proxy deployment model

1. Service activation & acquisition of GW info (DNS/MA-PE)
2. Check valid subscriber
3. Proxy Agent redirects traffic
4. Protocol Relay (MPTCP to TCP)
5. MultiNet Aggregation

- MA-UE: MultiNet Aggregation User Equipment
- MA-GW: MultiNet Aggregation Gateway
- MA-PE: MultiNet Aggregation Policy Engine
- ICP: Internet Content Provider
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Thank you