Setting the right environment for VoLTE
Mobile and VoLTE subscriptions

Mobile subscriptions
Unit: Million
5G | LTE | WCDMA/HSPA | GSM/EDGE | TD-SCDMA | CDMA | Other technologies
Smartphones | Feature phones | Mobile PCs/Tablets/ Routers
Year: 2017 - 2023

VoLTE subscriptions
Unit: Million
VoLTE
All devices
Year: 2017 - 2023

Source: Ericsson (June 2018)
Mobile Voice

- Declining in North America
- Stable in most regions
- Still significant source of revenue for carriers
VoLTE industry insights

- 650 million+ VoLTE subscriptions, expected to reach 5.5 billion in 2023 (Ericsson Mobility Report 2017)
- 127 live VoLTE networks in 63 countries on 1,218 devices (GSMA April 2018)
- Several IMS virtual deployments
- Most VoLTE service providers expanding with Wi-Fi calling and multi-device
- IoT voice
Content

— Market Trends

— VoLTE Performance

— Benefits and Use Cases

— Summary
VoLTE KPIs Maturity

- **MOS ≥ 3.5**
  Voice Quality

- **<200ms**
  HO Interruption

- **<225ms**
  Speech Delay

- **≥ 99%**
  Setup Success

- **<2,5-4s**
  Call Setup Time

VoLTE is better or on par with 2G/3G voice KPIs.
VoLTE network readiness

Different requirements compared to MBB:

- MBB high throughput, low mobility with short duration connections

- VoLTE: Low throughput, smaller packets, more mobility & longer duration calls (120+s)

- More sensitive to poor RF coverage/quality - effort to be focused on poor areas and cell edge
What to measure for VoLTE

- Voice is carried in data packets
- To monitor real user experience an E2E approach is needed
- Radio, Transport and Core KPIs needs to be monitored
- QoS is fundamental to achieve good user experience
Content

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Voice Quality beyond HD Voice with EVS

- Improved quality for narrowband and wideband
- Super wideband and Fullband audio voice quality
- Improved robustness – better quality at cell edge, areas with interference and for Voice over WiFi
Difference between VoLTE and OTT voice

- VoLTE is delivered with telecom grade quality
- RAN uses scheduling and adaptation techniques to mitigate poor radio conditions
- OTT VoIP services run as best-effort data services

Tests performed in drive test in busy and non busy hours in South Korea
Additional Use Cases

- HD+ voice
- Enriched calling
- Advanced messaging
- Video communication

- Wi-Fi calling
- Multi-device/SIM
- Multi-user
- Multi-persona
- Enterprise communication
- IoT and 5G communication

Designed to provide tomorrow’s advanced services

First to market in collaboration with device partners

Architected to quickly launch offerings
### Video Calling
- Support in majority of VoLTE smartphones
- Ease of use
- Communication continuity with HO to voice
- Live in close to 20 networks

### RCS
- Enriched messaging, chat, file messaging, etc
- Users can, from the messaging app itself, engage with virtual assistants or chatbots to interact with business without having to download multiple apps.
Wi-fi calling market opportunity

- Improve voice and video calling coverage
  - Extend to areas with limited 3GPP access
  - Utilize already deployed Wi-Fi

Wi-Fi calling solution
- 3GPP standardized
- Native device support from all major device vendors

90% of our time spent indoor

Only 40% of users are satisfied with cellular coverage indoor

Wi-Fi calling on smartphones
Wi-Fi calling for multi-device on selected device brands

Use mobile phone number to call over any Wi-Fi

90%
of our time spentindoor

Only 40%
of users are satisfied
with cellular
coverage indoor

Use mobile phone number to call over any Wi-Fi
Multi-device/SIM one number on multiple devices

— Allow several devices to share the same number
— Answer calls in any device
— Transfer calls between devices
Multi-persona use case

Many numbers on the same subscription
— Multi-persona settings and names
— Keep separate calling ID, message folders, phone book, voice mail

Persona selection
— Select which persona/dialer you want to use before you place the call: Private mobile, Work mobile, Private home, etc

Shown identity
— The receiving call party will only see the phone number you chose to call from
IoT voice call through VoLTE

Why VoLTE over Cat-M1?
- Expand IoT use cases
- New vertical markets
- Leveraging existing infrastructure
VoLTE for Unified Communication (VUC)

- Leverage on IMS core to integrate with enterprise applications
- Collaboration features
- Control and compliance for the enterprise
- Can be integrated with presence, rich collaboration and real time business applications (CRM, ERP, etc)
Roaming & interconnect

- Roaming and IP Interconnect happening, driving VoLTE take up and global expansion.

- S8HR the dominant roaming standard currently being deployed. Built on EPC/data roaming.

- VoLTE roaming live
- IP Interconnect live

IP Interconnect for VoLTE to VoLTE and for VoLTE to non-VoLTE terminals/networks
Live operations
- South Korea (2015)
- USA (2016)
5G and voice services

— Voice will continue to be offered alongside with new 5G specific services

— The 5G voice introduction starts with VoLTE as a base

— IMS continues as the voice service engine
Content

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Ericsson VoLTE commercial networks

100+ VoLTE customers with 45+ live networks
50+ VoLTE cloud customers with 10 live networks
Key Takeaways

- Global, interoperable with unmatched voice quality
- Environment ready: LTE coverage and terminals availability
- Mature solution with additional opportunities
- VoLTE and IMS evolution to 5G