A To-Do List for Easier Global IPv6 Deployment: **What Do We Have to Do to Make IPv6 "Happen" in Cellular Networks?**

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Starting point:

Lots of technology and talk

Not much if any commercial deployment

Answer 1: Its There – Just **Turn It On**

Justification for Answer 1

› The standards have been in place since 1998

› The cellular networks support this since 2005

› You can buy phones with IPv6 support

› We've been doing this since 2003 – you can, too

› There are issues, but they are practical – get on with solving them

› And PLEASE stop developing theories about possible alternative designs, "optimizations", IPv4 life support, or other things that just delay deployment

Answer 2: Some Enhancements Would Still Be Useful

While the standards are there, we keep inventing additional ways to use IPv6:

› Home routers with 3G/4G connection instead of DSL => you'll need prefix delegation

› IPv6-only networking => you'll need NAT64 to access remaining content in the IPv4 Internet

Or gain more operational experience:

› IETF effort on standardizing DNS discovery

Justification for Answer 2

› Recent 6MAN and BEHAVE efforts in the IETF
› Recent 3GPP tweaks on PD, DS PDP Context, ...
› Conclusion slide from March 3GPP-IETF meeting:

Conclusions on solutions

- It was recognized that necessary support in the network and devices is already available to "switch on" IPv6 in 3GPP networks
  - Some networks reported running dual stack
  - Some networks reported running IPv6-only now
- Solutions enhancing existing mechanisms for dual stack deployments and new solutions for IPv6-only deployments drew wide support
  - Gateway-initiated Dual Stack Lite
  - Stateless and stateful IPv4/IPv6 translation

Answer 3: There's More than One Goal

Cellular networks are special from a deployment perspective:

› Mobility tunnels separate user traffic from underlying core network

› The APN concept separates different traffic types

IPv6 or dual stack can be independently deployed on:

› The underlying network

› User's traffic to the Internet

› Operator's own services (voice etc)

Answer 4: What You REALLY Need to Do

Most if not all big operators have serious efforts underway

What they need to have:

› The right network planning, goals, and motives for the different cases

› Turning IPv6 on, gaining experience and maturing the all that so-far-relatively-unused code base

› Taking care of that billing system, procedures, personnel training, upstream connectivity, dealing with white lists, roaming agreements, …

› More end-user devices with IPv6 support