

by Dean Bubley

Is ubiquity in communications services over-rated?

Telecom operators, industry bodies and equipment suppliers often praise the “ubiquity” of traditional services, such as the PSTN or SMS, and the universal “reachability” of E.164 telephone numbers. This is contrasted with the “islands” of connectivity represented by Internet-based communications such as Skype or *Facebook*.

The desirability of ubiquity is taken to be a “self-evident truth”, an unarguable benefit, and something to be maintained at all costs, even as we move towards all-IP networks and an explosion of consumer choice through the Internet and mobile apps. However, this has five implicit assumptions that do not bear close scrutiny:

1. That the phone call - and phone number will remain our primary and optimal mode of communication.
2. That IP-based versions of those services (generally IMS-based) are “entitled” to ride on the coat-tails of their ubiquitous circuit-based predecessors, and will inevitably become ubiquitous.
3. That the classical model of each telecom company owning its own (commodity) switches and applications, and interoperating/federating them, will remain central.
4. That communications services will remain as billable “services”, rather than becoming “products”, or just “features” or “functions” of apps.
5. That consumers always prefer interoperable and universal services, rather than fragmented or “silo” alternatives.

Facebook has already passed a billion users and mobile operators holding back commercial VoLTE (Voice on LTE) rollouts until 2014, there is clearly a reality-check needed about what will be “ubiquitous” and when. Indeed, if that is even a desirable goal.

The phone call was revolutionary 100 years ago, but was not a true reflection of how ideal human spoken communication, being interruptive, suffering from the

“hegemony of the caller”. It brings a host of social, technical and legal rules as baggage. You only need to look at how a person’s behaviour and body-language change when they’re on the phone, to realise that it’s not a perfect equivalent to face-to-face spoken communications.

It is fine for certain types of interaction, but inadequate for others, with many people now pre-scheduling calls, or “escalating” from IM or SMS chats. We see the emergence of new forms of voice communication (e.g., “ambient”, app-embedded or in-game chat). Some markets like the UK have gone past “peak telephony”, with minutes-of-use falling.

Voice is much more than just “telephony”, splintering into many forms, each defined by its intention and context. For example, we will book a cab with a taxi app, with a “speak to the driver” function if we cannot find where the vehicle is parked when it arrives, rather than a phone call.

Some users will “cut the number” entirely and move to alternative ID systems, while some operators may offer “cloud numbers” decoupled from access line subscriptions or SIM cards. Increasingly, we will have multiple access providers (especially as we use multiple devices and assorted third-party WiFi connections). As a result, there will be ever-less argument to have a single “master” access against which everything is tied.

Today phone numbers and phone services are indeed ubiquitous. They emerged in an era in which there were no alternatives, offered reliability and extra features like emergency connectivity. This has served us well and gained popularity. The PSTN earned its ubiquity, with billions of people having seen it to be good, and buying into it. Mobile telephony (and SMS) gradually usurped fixed telephony and extended its reach.

The problem is that the IP-based successors of telephony - such as IMS-based VoLTE - have conspicuously not yet earned their ubiquity. Rich Communication Services (RCS) messaging - branded "Joyn" by GSMA - is another example. Some in the industry are assuming ubiquity, though they have not yet been given a "mandate" by end-users, and in the new world of choice they may not. Worse, the technologies have significant teething problems, and considerable costs - just when alternatives are bringing down prices, cutting into profits, and raising the bar for quality and innovation.

Operator-based services will not be the only game in town, with *Facebook*, *Skype* and *WhatsApp* already more "ubiquitous" than IMS-based services. Even for fixed telephony, IMS-based VoIP solutions compete with simpler NGN-VoIP, third-party services such as *Vonage* or *Skype* over "naked DSL", and of course circuit telephony, which is still leading after 10 years of grindingly-slow substitution.

While many in the industry claim that so-called OTT players are "silos" or "islands", that is neither accurate nor relevant. In its current state, it is IMS that is the silo, albeit one managed by an arguing committee rather than an individual company. There are many ways by which Internet-based services can and do interoperate - not all the time, or for all examples, but it is a trivial problem where there is demand. (Indeed, email is the best example of an OTT communications application which interoperates perfectly.)

It seems abundantly clear that users actually like silos. (Note to regulators and ministers: users are also voters). By and large, people do not seem to mind that *Twitter*

or *Facebook* are run by individual companies, and they have plenty of choice if they do mind. It is also clear that users do not always mind about variable quality or reliability either, if something is either free or well-featured.

"Ubiquitous reachability" seems to be a straw-man. Increasingly, people don't want to be reached, preferring something more nuanced - easy reach by specific people (e.g., friends, clients, colleagues), more difficult or filtered reach by some (e.g., loose contacts), and no reach at all by others (e.g., telesales). *Facebook*, *LinkedIn* and other social networks build in ideas like "mutual contacts", contact requests, "how do you know X" functions and so on.

In a busy, multitasking world, we don't want ubiquitous reach

The problem is that IMS proponents, most vendors & operators, and industry bodies, never think much about behavioural psychology, or social anthropology. They develop technical standards based on engineering rather than human principles. End-users, behaviour and preferences are rarely considered before technical issues like interoperability. This is why the classic "federation" approach to telecoms fails, not only does it take far too long to evolve, but the underlying economics are flawed. A federation of services means that each operator produces, distributes and sells the same commodity. You can call these "dumb services". No other industry has over one thousand vendors of an undifferentiated commodity with falling prices and zero shipping costs.



Federation and interoperability should occur after services are successful, when the owners/users think there is a good rationale. The successful companies will federate from a position of strength, not in anticipation of it. This avoids the risk of creating a brittle, inflexible, slow-moving bureaucracy which is incapable of backtracking when it makes a mistake.

There needs to be a mechanism for end-users to force a change in “ubiquitous” services where they perceive a problem (e.g., with pricing or privacy). Companies like *Facebook* are aware that any changes or problems risk users abandoning the service and switching allegiance, taking hundreds of friends with them. This is right and proper in a competitive marketplace.

There is no path for end-users to petition the 3GPP to change the nature of deep-packet inspection, or the role of SIM cards. For federated services, churning does not help, because there is no competition at the basic layer of service features and capabilities. You have to take what you are given, or perhaps trust to the slow grind of regulation and politics for the largest issues (e.g., Net Neutrality).

Unsurprisingly, in a world of choice and crowd-sourced product direction, users are now rejecting federated services for better, more-tailored and often free/cheap alternatives, delivered via open Internet access and apps.

Emergency calling is often misused as an excuse for continuing the controlled, centralised, federated-telco model. While good emergency communications are essential, there needs to be a bottom-up rethink for innovative and fragmented services and applications. We could decouple emergency communications from the telephone network and look at evolutionary paths. For \$50-100 billion, we could probably find a global 5MHz of spectrum, build dedicated networks and give every person on the planet a cheap cellular emergency

key-fob or bracelet. Alternatively, banging together the heads of Microsoft, Google, Apple, *Facebook* and the telcos could yield a rich and extensible “Emergency API” that far exceeds today’s voice-only 911.

Overall, it is time to rethink the term “ubiquitous”. What ought to be ubiquitous is the right for the individual to be contacted primarily on their terms, not those of whoever is trying to contact them. If we want a lowest-common denominator telephony service in perpetuity, then we should optimise GSM and circuit voice for maximum efficiency, lowest cost and power consumption - especially as telephony revenues are likely to fall sharply in future.

GSM, unlike VoLTE, RCS or IMS, has earned its ubiquity. IMS and VoLTE might succeed and become ubiquitous eventually (RCS certainly will not), though the industry should not assume or pretend that it is inevitable. The transition to telco-run, “federated” IP-based communications services is slow and the services offer little that is new. This is spectacularly bad timing, as it is happening when newcomers are launching innovative, functional and often “cool” alternatives.

Telcos - as well as regulators and governments - need to be aware of these changes as they have far-reaching ramifications. They also need to grasp that communications is going to be a blend of billable “services” and humble “features”, as capabilities like voice transmission get absorbed into the basic properties of the web. They need to recognise that ubiquity is earned and not assumed.

Dean Buble, Founder & Director of Disruptive Analysis, a UK-based telecoms analyst and consulting firm, which advises on trends in technology and industry structure. In October 2012 he spoke at ITU Telecom World Dubai on a panel on the future of telecommunication services. He can be followed on [Twitter](#) @Disruptive_Dean