



Accelerating the speed and reliability of emergency calls

Pushing network and systems technology to their limits, BT Ireland's Emergency Call Answering Service takes availability and responsiveness to new heights.

Overview

When the Department of Communications, Energy and Natural Resources (DCENR) went to tender in 2016 to find a telecoms provider to run Ireland's Emergency Call Answering Service (ECAS), a two year process began that culminated in BT Ireland winning a contract it had held since 2010 for a further five years. Providing the Public Safety Answering Point (PSAP), BT operators direct 112/999 calls to the appropriate emergency service – An Garda Síochána, Fire Service, Ambulance Service or Coast Guard. Winning the contract highlights BT's network and systems capabilities, where service availability and responsiveness can be the difference between life and death.

The challenge

Although BT had already been running ECAS in Ireland, the 2016 tender raised the bar on what was needed. Achieving the required levels of resilience was the biggest challenge, with pressure on the successful bidder to build out a service with 24/7, 365-days a year availability and almost zero downtime.

With 2.3 million calls a year and around 6,000 a day, service levels would not just be measured by resilience but on how quickly calls are answered, and the ability to pinpoint the precise location of callers. The Department's list of KPIs (Key Performance Indicators) were doubled from the previous contract and far exceeded anything a telco might be expected to provide for enterprise clients.

A PSAP provider has to leverage the latest technologies to provide advanced techniques for identifying the location of the caller in need of help; combining the most efficient systems for directing calls to the appropriate emergency service; facilities and infrastructure with guaranteed resilience, and metrics and measurement for driving continuous improvement.

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Mick Kelly
Head of Operations, ECAS, BT Ireland

The solution

We won the contract and committed to a multi-million euro investment as part of an all-encompassing service covering technology, buildings, a dedicated team of 80 backroom staff and highly trained call takers who would now be directly employed by BT. ECAS demands continuous innovation and performance improvement, which fits well with our culture – we never stand still as a company and always look at how new technologies can further optimise our services.

The latest iteration of our IP-based network runs over faster gigabit connections that eliminate jitter and delays. We are well known for telecoms but less so for systems and systems integration. ECAS is underpinned with a proprietary platform that BT owns and continues to develop. We were also able to draw on BT's security practice to protect systems behind firewalls as well as physical buildings. A dedicated security officer works on the account.

While no service can ever be 100 percent available, we used modelling techniques to see how close we could get. In a country the size of Ireland, two major failures could simultaneously take out our two operator centres, so we had to draw on all our expertise and experience to eliminate the risk. "Upgrading systems in data centres while maintaining a 'live' service is a skill we have that few providers can emulate," says Mick Kelly, BT's Head of Operations at ECAS. "It's like changing all the engines on a 747 while flying."

Guaranteeing accurate identification of the caller's location is another challenge. No single solution solves every scenario, so we are constantly layering in systems to get closer to 100 percent precision. A lot of work goes on behind the scenes to transmit location details directly to the dispatching systems of Garda cars and ambulances as well as the satnav systems of ambulances as they respond. In addition, ECAS also combines many indicators of caller location including the mobile network base station and Eircode.

BT's Solutions & Service Design department was instrumental in making the ECAS implementation successful, providing solution direction and technical expertise at all points of the project lifecycle. Des Tyrrell, Head of Solutions at BT Ireland, explains its role: "We support our customers through the complete design and implementation journey, from enterprise architecture and networks to infrastructure and data solutions," he said. "Our goal is to provide our customers with a first-class experience, transforming their businesses with a vision and roadmap, from strategic thinking to flawless execution."

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The result

Northern Europe is recognised as having the most sophisticated ECAS systems in the world and Ireland's is among the very best. The BT service was already answering all emergency calls in less than 1.3 seconds, a time we have now cut to 0.7 seconds with the new service, a fractional gain that could be significant when it comes to saving lives. We also added our own KPIs to the Department's list, setting targets for our service that our newly configured network and systems will be measured against.

One target is to improve on the Government's expectation of 99.999 per cent availability. A 'five-nines' service translates into no more than five minutes downtime a year, but our focus is on going higher by reconfiguring the infrastructure.

Advances in technology enabled us to run the revamped service out of two locations instead of three – one in Ballyshannon, Co Donegal, and the second in Navan, Co Meath. Both sites run concurrently, 24/7, with failover options to contingency sites and two data centres, including our Dublin facility. In worst case scenarios, Ballyshannon could function as the only operator centre using Citywest equipment 200 miles away; or Navan, which also functions as a data centre, could run on its own.

Combining high-speed telecoms with very large databases has significantly improved our caller location capabilities. As operators take a call, the system is automatically matching Eircodes, base stations, STD codes and phone numbers in the background. Advanced Mobile Location (AML) has been fine-tuned – a standard invented by BT and now used globally to locate callers using smartphones – adding a handset-derived GPS location to SMS messages. "It sounds simple, but it took a lot of work to get texts to provide location information," said Mick Kelly. "Location is the Holy Grail in emergency services; it takes the search out of search and rescue. If you can't find someone who calls, you can't help them."

Data analytics is a growing part of every technology solution and ECAS is no exception. Each call generates huge volumes of metadata – location, duration, how it was re-routed – which we use to refine and improve the service or pass on as evidence for incident investigations, such as road traffic accidents or a serious crime.

The collective impact of all the new features and functionality have created a showcase for what we can do. "I would like to think that prospective BT customers would take a look at our ECAS service and feel very confident about our ability to address their needs. It's a state-of-the-art service at the leading edge of what technology can deliver," said Mick Kelly.

