Challenge
The Royal Derby Hospital is the newest hospital in the East Midlands. It cares for more than 180,000 people as inpatients, outpatients, emergency patients, and day cases. This equates to around 625,000 visits from patients each year. The hospital is equipped with the first rooftop helipad in the East Midlands, state-of-the-art intensive care facilities, and enhanced services for stroke and cancer care.

The Royal Derby Hospital began life as two separate entities: the Derbyshire Royal Infirmary in the city centre, which handled the majority of acute cases; and the Derby City General Hospital, on the outskirts of Derby, which focused more on maternity and children’s care. In 1998 the trusts governing these hospitals merged into one and a review recommended combining the facilities, too, on a single site.

A private finance initiative project to develop the City site followed in 2003. Between April and June 2009 all acute services, theatres, wards, and clinics moved there. That effectively meant doubling the number of people at the City site. The communications challenge for planners was not only to keep the phone lines working throughout the changeover, but also to reduce overall telecommunications costs while improving the reliability of the service.

Solution
The City site already had traditional voice services provided by BT. To meet the new hospital’s requirements for reduced call costs and improved reliability, Martin Steedman, Head of Voice Services, decided to look for alternatives. He called on N3SP, the BT subsidiary that provides and manages N3 services on behalf of NHS Connecting for Health.

With its national IP-based broadband network, N3 provides more than 40,000 NHS connections throughout England and Scotland. The largest virtual private network in Europe, it supports digital applications such as Choose and Book, the Care Records Service, and the Picture Archiving and Communication System.

N3 also offers a managed voice solution called the N3 Hosted Voice Service (HVS). Providing managed IP telephony services from within the N3 network itself, HVS eliminates the need for onsite telephone system hardware and provides access to reduced rate and free on-net telephone calls.

As an alternative to N3 HVS, the N3 Local Gateway Service (LGS) is designed for organisations and sites with a large existing voice switch that they wish to connect directly to the N3 voice services network. LGS tends to be used by large hospital and trust sites with large numbers of users.

The Derby City site already had an N3 data connection from N3 so it was a simple matter to use it to carry N3 LGS voice. Martin Steedman says: “The N3 Local Gateway Service was chosen for this project because it offered diverse handling of telephone calls. We have two telephone exchanges at opposite ends of the site, in case one has to be abandoned or fails for whatever reason. We adopted the same principle for the N3 Local Gateway Service. We have 60 channels coming onto site. We split them 30 channels into each exchange so that, again, if one of the exchanges fails at least we retain 50 per cent of the services.”

Value
Martin Steedman is clear that the main reason for choosing N3 was the potential for cost reduction. “The hard cash benefits to the trust from using N3 Local Gateway Service were easily identifiable at the start of the project and were the main driver behind installing this service,” he says. “It was anticipated that we would save around 20 per cent. We have been able to demonstrate quite easily to our financial people and budget holders that we have achieved this figure. In fact, we are saving some £48,000 a year on call costs.”

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However, cost is not the only benefit the Royal Derby gets. N3 calls are delivered over a completely different network to that used by the hospital’s standard phones. So N3 LGS could be installed and tested without interruption of service – a critical consideration for a busy, round-the-clock healthcare facility. Another design feature is that each hospital department has phones connected to both exchanges, so that if one should fail there will always be working extensions available from the other.

“Throughout the implementation and subsequent operation of the N3 Local Gateway Service, I have been impressed by the responsiveness of both BT and N3.”

Martin Steedman, Head of Voice Services, Royal Derby Hospital

A separate N3 HVS connection serves Derby DrivAbility, an assessment centre in nearby Kingsway Hospital, which is affiliated to the Royal Derby Hospital. Most of the surrounding grounds have been sold for development, leaving Derby DrivAbility in the middle of a housing estate without traditional telephone cables. The N3 HVS connection runs on an underground optical fibre cable. It means the Royal Derby Hospital does not have to worry about telephony infrastructure at Derby DrivAbility, which will most likely be moved to a new location in the near future.

Core services

- N3 Hosted Voice Service
- N3 Local Gateway Service
- N3 Managed Voice Service