Smoother, Smarter Transport in the UAE

How mobile technologies are making it easier to travel on Dubai's metro, buses and water taxis

High-tech Dubai has become the first city in the Middle East in which people can use their mobile phones to access public transport.

Launched in September 2013, the new Smart Nol service enables a passenger to open a ticket barrier simply by tapping their handset against a reader. Instead of having transport credit stored on a conventional Nol plastic card, the new service enables the passenger to store credit on a virtual Nol account on the SIM card inside their handset.

When the consumer taps their phone against a ticket gate or an on-board reader, the service uses the short-range wireless technology NFC (Near Field Communications) to connect to the handset and validate the passenger's virtual Nol account. The passenger can use a NFC handset to check in and out of buses, metro stations and water taxis, prompting the appropriate fare to be deducted from their Nol credit.

Convenient and interactive

Developed by Dubai's Roads and Transport Authority (RTA) in conjunction with the Emirate's mobile operators Etisalat and Du, the groundbreaking service is designed to remove the need for passengers to carry a separate physical card. There are more than six million Nol cards in use in Dubai and, in time, the new service could significantly reduce the RTA's costs and environmental impact by removing the need to produce and distribute these plastic cards. The Smart Nol service is also designed to reinforce the high-tech, forward-looking image of Dubai's public transport (see box), further encouraging usage of the service.

For consumers, the service makes it easier to manage their Nol account: Passengers can review their Nol usage on their handset at anytime, anywhere, rather than having to use a machine in a metro station. The passenger can use an Etisalat or Du app, or a special SIM toolkit menu, to check their current balance and the amount and date of their last Nol recharge (see boxes). They can also see the date and the cost of their most recent journey, whether they have reached the daily fare cap and their tag ID and expiry date, which a passenger needs when they contact the RTA call centre.

Passengers can top up the virtual card at RTA terminals or counters or online through the Nol web site using a unique number that appears on their display once the NFC SIM is placed into their smartphone. In future, Du plans to also enable its customers to use their mobile subscription to top up their Nol account.

New SIMs needed

Passengers need a NFC handset and NFC SIM card to use the Smart Nol service, which is preloaded with Dh 14 (almost 3 euros) of credit. Etisalat charges Dh25 (5 euros) to replace the SIM, plus an Dh50 activation fee and Dh5 monthly rental, while Du charges a flat rate of Dh55 for a SIM replacement, which will be supplemented by a NFC service fee of Dh2 a month from March 2014.

Public transport in Dubai

One of the world's fastest growing cities, Dubai has invested heavily in public transport in recent years. Formed by government decree in 2005, the Roads and Transport Authority (RTA) is responsible for both public transport and the road network in the Emirate of Dubai, and between Dubai and other Emirates of the UAE.

The Emirate's public transport systems combine metro, bus, road taxi and water taxis. The driverless metro system, which has 75km of tracks, is fully automated. It has two lines operational with a further three planned. The first urban train network in the Arabian Peninsula, the Dubai metro transported 33.2 million people in the first quarter of 2013, a significant increase over the same period the precious year.

If the battery on the passenger's phone dies before they are able to check out of the metro, they need to buy a single ticket called an 'exit ticket' – the same procedure as if they lost a physical ticket during a journey. If the passenger loses their phone, they need to report it to their mobile operator and the RTA, as well as the local police department. The operator will block the SIM card and all features related to telecommunication services, while the RTA will block the Nol service.

Etisalat says Smart Nol has seen "impressive immediate service take-up." The mobile operator's goal is to have 100,000 of its customers using the Smart Nol service in the first year after launch. Etisalat says NFC-based transport payments are an integral part of its "comprehensive NFC offering", which also includes merchant payments, secure access, loyalty/couponing and mobile identity services.

Overcoming implementation challenges
The RTA, Du and Etisalat piloted the Smart Nol service in 2012, before launching commercially the following year. For the mobile operators, the selection of highly capable, forward-looking SIM card suppliers was one of the critical success factors for the project. Etisalat says its SIM card supplier helped to implement the backend systems integration required for seamless integration of the NFC SIM cards and Etisalat's mobile application.

Du and Etisalat also had to deal with inconsistent implementations of the NFC standard by handset manufacturers. This issue was partially addressed through extensive integration testing and the development of optimised applications for different types of handsets. Furthermore, the operators performed full end-to-end validation tests for a large number of use cases to meet the RTA's extensive compliance requirements for the technical solution.

Expansion planned

At the end of 2013, the RTA announced that Dubai residents will be able to begin paying taxi fares using a prepaid Smart Nol transit card stored on their NFC SIM in 2014. The RTA also plans to enable consumers to use their Nol accounts to pay for some goods and services in shops and restaurants. "We are providing this service for NFC-enabled mobile phone users via a special SIM card to use Nol services for public transport and in future for micropayments in UAE," Abdulla Ali Al Madani, the RTA's CEO said at the time of the commercial launch. "Currently we have more than six million Nol cards

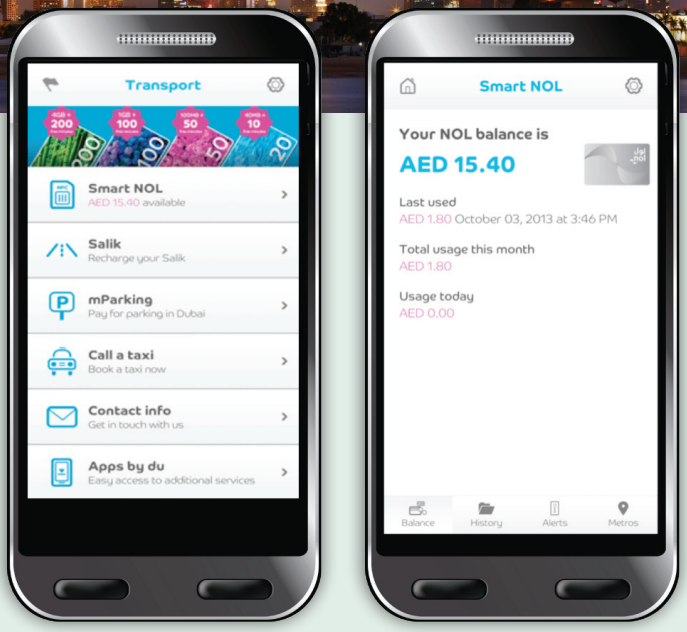
and we are expecting good adoption from our customer base since UAE has a good number of NFC-enabled handsets," he added.

Both Etisalat and Du envision that the Smart Nol service will be part of a broad range of smart city services underpinned by mobile connectivity. At the time of the launch, Khaled El Khouly, Chief Marketing Officer of Etisalat, said: "The launch of the latest NFC technology solution will be the beginning of a new era on how we empower our customers as well as service providers in the country....The partnership with RTA is in line with our long term strategy to support mGovernment and initiatives raising the profile of the country, as well as impacting the lives of the people of UAE."

Fahad Al Hassawi, Chief Commercial Officer of Du, added: "We believe that our role goes beyond providing telecom services to be a catalyst for society's advancement, through our involvement in projects such as this which revolutionize the public transport experience and support the 'Smart Government' vision. Our collaboration with the RTA to launch NFC is in line with our ongoing commitment to innovation and enhancing customer experience."

The Du Transport app

Smart Nol is one of several services that can be managed using Du's transport app. The app, which is available on Android handsets, enables consumers to check their Nol balance and track their recharge history. They can also use the app to recharge their Salik account, which Dubai's citizens can use to automatically pay road tolls. Moreover, the app can be used to find the closest metro station, to book a taxi and to pay for parking over the mobile network.



Etisalat's Mobile NFC app

Etisalat's Mobile NFC app for Android phones enables passengers to access their Nol card, view their credit and check their transactions history. The app draws on in-depth research into consumer requirements in the United Arab Emirates, focused on the following questions:

- What do consumers look for in an NFC implementation?
- What are the specific requirements of a commuter?
- What are the current issues being faced by commuters while utilizing public transport?

To help it develop an intuitive end-user interface, Etisalat explored more than 2,000 use cases.

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