Qtel plan of migration to 3G

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Scope

The introduction of 3G will not, in and of itself, lead to the creation of a multiplicity of exciting new applications that will transform the experience and purpose of wireless connectivity.

3G upgrades to the mobile network are an important building block, but they are not the only one.

In order to achieve and monetise the full “3G” multimedia customer experience, migration needs to take place in other areas of the network as well.

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- Importance of Services and customer satisfaction
- Third Party Strategy
- 3G and other Technologies
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Facts about Qatar

- Independent country since 3rd September 1971
- Member of GCC
- Arabic official language
- Area: 11,437 square km
- Capital: Doha
- Population: 606,000, >65% expats
- 87% of pop. live in Doha
- GDP: 25.000 USD per capita, growing at around 10% per year
- >100 new large commercial buildings next 2 years
- Host of the Asian Games 2006

www.qtel.com.qa

Qtel's mission statement

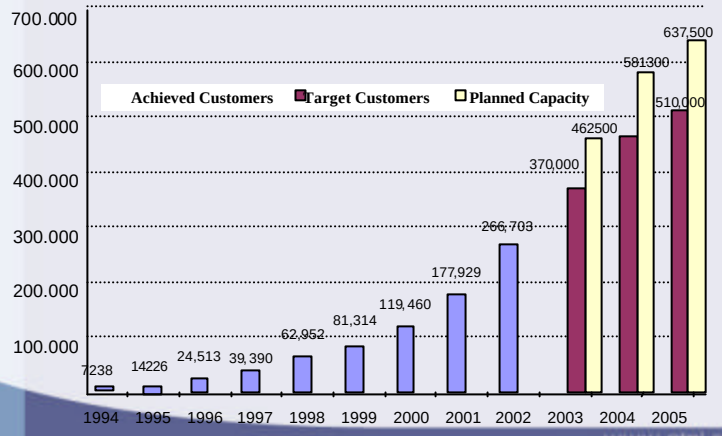
"Qtel's mission is to be the Leading
Full-Service Telecommunications Provider
in Qatar and
One of top-three providers of
Wireless and Value Added Data Services
in selected MENA countries. "

Qtel dedication to Asian Games 2006

- Asian Games will take place in Doha December 2006.
- More than 10.000 athletes and tens of thousands of spectators, delegates, TV and other media representatives from more than 34 countries are expected to Doha for the event. Media coverage will go out to in excess of 3 billion people.
- Qtel Wireless Services intends to use the Asian Games 2006 as a showcase for a full range of Multimedia services.

Qtel GSM history

- Qtel first GSM operator in GCC
- Launch Feb 94
- Today 350.000 customers
- >125 Roaming Partners
- Penetration rate 50%
- GPRS launched July 2003
- Three infrastructure vendors: Motorola, Siemens, Alcatel



GSM network details

Radio Network Details:

- Doha:
  - GSM 900 with DCS 1800 overlay
  - Signal level better than –65 dBm
- Outside Doha:
  - GSM 900
  - Signal level better than –75 dBm
- Traffic design:
  - 60 mErl per customer
  - 3 BHCA per customer
- 355 base stations
- 182 Sites
- 17 Indoor Solutions
- 26 Micro Cells

Core Network Details:

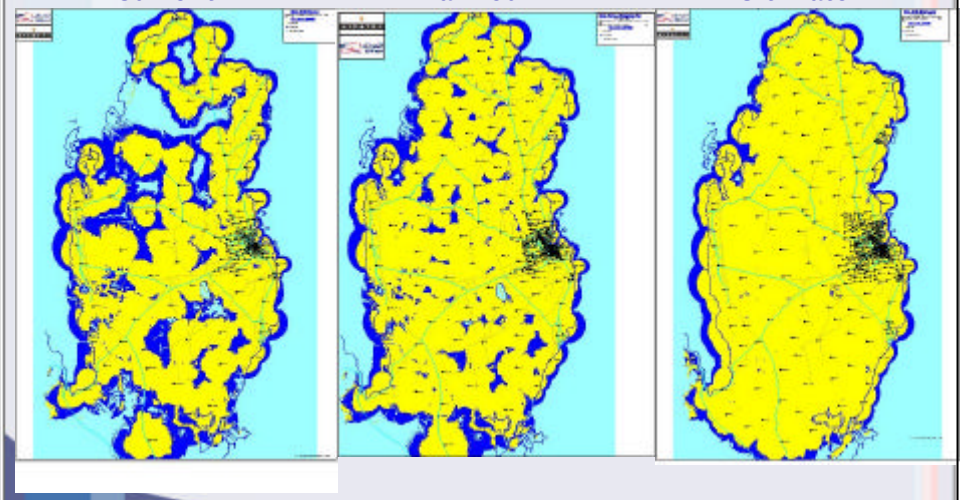
- 5 MSCs
- 2 HLRs
- 1 SGSN / 1 GGSN
- 1 IN Platform (CAMEL)
- 1 SMSC
- 1 VMS
- 1 WAP GW
- 1 MMSC (coming 10/03)

GPRS available in complete network

75% of base stations EDGE prepared

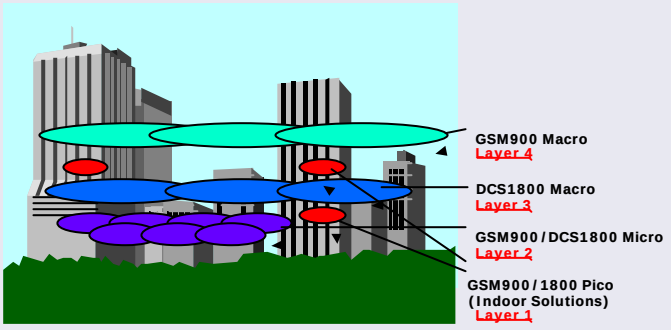
Current, planned and ultimate coverage Qatar

Current | Planned | Ultimate

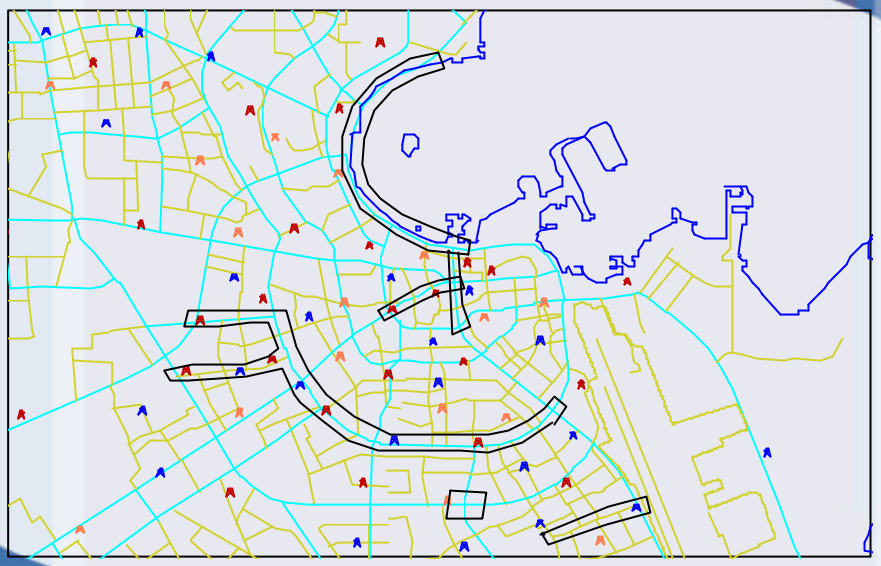


Frequency utilisation

HIRARCHICAL CELL STRUCTURE (HCS) IN Q-TEL GSM NETWORK



Micro layer under study/implementation

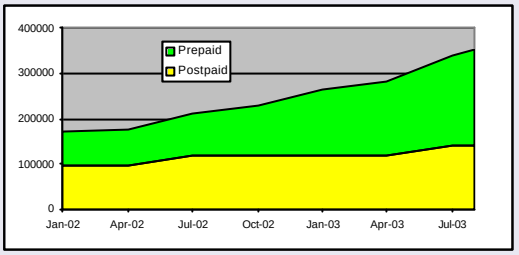


Key performance indicators

Key Performance Indicator	ISO value	Qtel achieved value
Call Setup Success Rate	> 95 %	97.14 %
Handover Success Rate	> 95 %	96.6 %
Call Drop Rate	< 2 %	0.48 %
Congestion	< 1 %	0 %: 87% of cells < 1 %: 94% of cells < 5 %: 98.4 % of cells ~~Total: < 0.5 %~~
Average Call Volume		6.5 million calls/day

Available services

- Voice
- Voice Mail
- SMS based services:
  - SMS person to person
  - SMS Chat
  - Business Messaging Services
  - SMS based Content Services (Breaking News)
- Internet Access over GPRS



Planned new services 2003

- Multi-Media Messaging
- SMS Voting
- Pre-Paid Roaming
- Conference Calls
- SMS / WAP Content Portal
- Duplicate SIM (one number – two SIM cards)
- Twin line (two numbers – one SIM card)

Qtel´s approach to 3G

- Qtel is continuously monitoring the development of 2.5G and 3G technologies and their implementation around the world
- The hype surrounding 2.5G and 3G has established a certain level of anticipation and expectation in the market. It is evident that actual data rates will not be as high as was first anticipated. That being said, there are only a few applications that are dependant on high data rates
- Qtel intends to use 3G as a vehicle by which it may enhance the user experience of wireless data services over 2.5G
- Customer proposition based on services rather than technology

- Marketing messages will emphasise the value of applications rather than the underlying bearer service (which may be 2.5G or 3G)
- However, quality of 3G network will be of crucial importance in attracting and retaining higher value customers. Network quality at the customer level will be king
- Existing product roadmap has 3 key objectives:
  1. To enhance the capabilities of voice (Prepaid roaming, etc);
  2. To stimulate demand for wireless data in the consumer market (MMS, SMS content, etc); and
  3. To stimulate the supply of wireless data content by opening up the Qtel network to 3rd parties (SMS Bulk, Portal, etc).

3rd party strategy

- Content drives usage. Partnerships with 3rd party Content Providers (CPs) are vital
- Qtel pursuing an open content strategy by making the network available to all CPs
- Qtel intends to:
  - Introduce a billing platform linked with an integrated content management platform.
  - Publish open network API's to 3rd parties.
  - Negotiate revenue share agreements with CP's on a case by case basis (for co-branded – marketed applications)
  - Publish a standardised agreement offering a pre-defined revenue share for CPs intending to merely plug and play.

Facilitating the customer experience

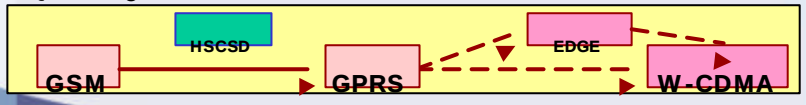
- Qtel´s charging systems will incorporate rating engines that have the flexibility required to rate on a variety of pricing models including service-differentiated data billing
- Development is essential not just to Qtel´s ability to monetise its own products and services but also to its ability to leverage the strength of its billing functionality into an increased share of 3rd party content revenues
- Qtel is also working towards convergence at the customer care level. Postpaid and Prepaid billing systems interfacing into one single customer database

- Complex services have to be easy to access and use
- Qtel does not procure, sell or distribute handsets
- Short-term problem therefore as GPRS / Portal launches require handset configuration
- To improve customer experience, Qtel is:
  1. Upgrading service centers and marketing collateral
  2. Implementing education and ease of use campaigns
  3. Intending to use Over The Air (OTA) handset/SIM configuration

3G technology choice

UMTS preferred to CDMA-2000 due to:

- Smoother upgrade of network and customer migration:
  - Handover GSM/GPRS and UMTS part of 3GPP standards
  - UMTS handsets will support GSM/GPRS
  - Allows phased approach to 3G buildout (UMTS islands in GSM landscape)
- Re-use of investments in GSM/GPRS infrastructure
- UMTS is the preferred standard in the region
- International Roaming available to UMTS customers in all roaming partner GSM/GPRS networks
- Qtel Organisation more familiar with 3GPP standards



3G and EDGE

- Qtel's primary focus still on developing wireless data applications that will be served by GPRS
- Qtel does not have an immediate spectrum shortage
- Customer experience is paramount.
- EDGE is an option to Qtel if:
  - 3G is not yet stable
  - The market is demanding higher bandwidth than is available with GPRS
  - 3G proves to be too expensive

3G and WLAN

- 3G and WLAN are complementary technologies
- WLAN provides high speed data access in dedicated areas for stationary users that download large data volumes
- 3G provides medium speed data access in a large area for mobile users that download small to medium data volumes
- Qtel will implement WLAN in parallell with UMTS and is looking into the possibilities of combining the two technologies into one package to its customers.

3G demonstration

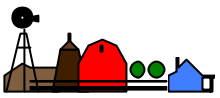
- Qtel, in partnership with Motorola and Al Jazeera, has a 3G showcase at this event
- Qtel's intention is to demonstrate:
  - Its commitment to new products and services
  - The capabilities of the technology to both consumers and potential content partners
  - How premium local content may look over this service

3G trial strategy

- Envisage multiple mini-trials with two or three Vendors, each allocated dedicated Coverage Areas in Doha
- Test the customer experience with 3G services
  - Speech, SMS, WAP
  - Video Phone, Video Conference, Video on Demand
  - Palm Web Browse, Laptop Web Browse
  - MMS
  - Location Based Services
- Trials will target:
  - 3G Network functionality
  - Inter-working with GSM/GPRS network (visibility of the 'seam')
  - Radio Network Dimensioning parameters – trade-offs between capacity, bandwidth and coverage
  - Known problems (synchronisation, multipath signalling, stability)

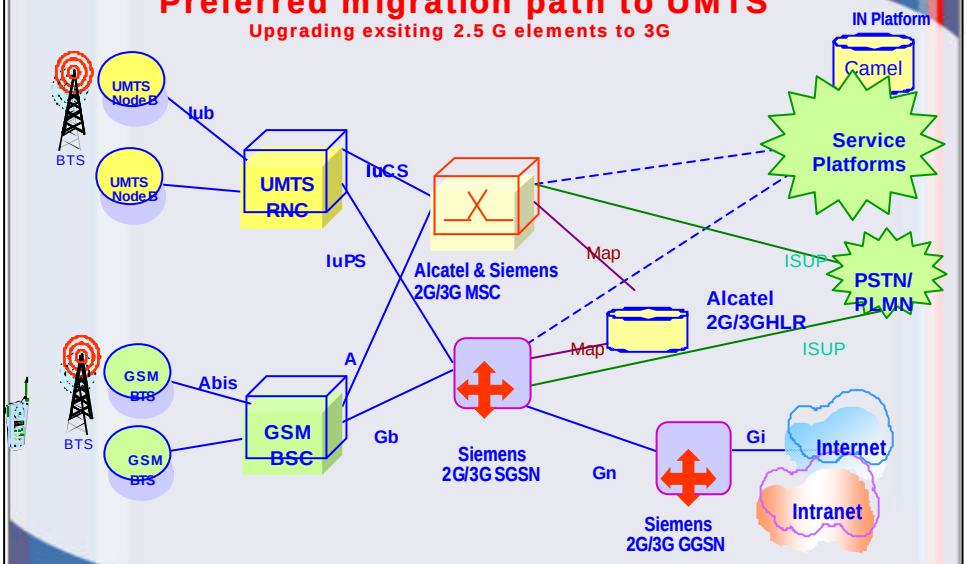
3G rollout strategy

- Qtel will gradually roll out UMTS coverage. Coverage in Inner Doha will be followed by coverage in Greater Doha and in some areas outside Doha
- Co-location of UMTS NodeB's with existing GSM900 and DCS1800 base stations (GSM1800) may give reasonable UMTS coverage. Initial estimate is that a bandwidth of 144 kbit/s can be obtained (subject to 3G trial results)
- In a second step, Qtel will implement more sites to enhance coverage, capacity and bandwidth. Bandwidth in Doha to reach 384 kbit/s for high-end customers

Indoor/low range outdoor Max speed: 10 km/h	Suburban outdoor Max speed: 120 km/h	Rural outdoor Max speed: 500 km/h
		
2 Mbit/s	384 kbit/s	144 kbit/s

Preferred migration path to UMTS

Upgrading exsiting 2.5 G elements to 3G



Source: Norconsult Telematics

Pro's and con's of preferred migration path versus overlaid 3G network

Advantages:

- Re-use of existing Core Network Elements
- No duplication of connections to Service Platforms, PSTN network and external systems (CCBS, etc)
- Likely to be less expensive since only new Iu Interface is required
- Lower OPEX cost
- Existing Radio vendor easier to integrate than new vendor

Disadvantages:

- Less flexibility during Integration due to live customers on GSM/GPRS network
- More complex to introduce new Radio vendor with existing core both technically and commercially

Phased approach

Phase I (1H 2005):

- Inner Doha. 1 Carrier per Sector (Node B: 1+1+1)
- No or Few New Sites (subject to 3G trial results)
- Provide full speech & Data Coverage Up to 144 kbit/s

Phase II (2H 2005/1H2006):

- Inner Doha maximum speed up to 384 kbit/s
- Greater Doha 1 Carrier Per Sector
- Hot Spots outside Doha

Other considerations to be taken into account:

- Terminal and SIM availability
- Impact on Customer Care and Billing Systems
- Development of proper Business and Marketing models
- Services must run on both 2.5G and 3G (when feasible)
- WLAN impact

Planned wireless data applications

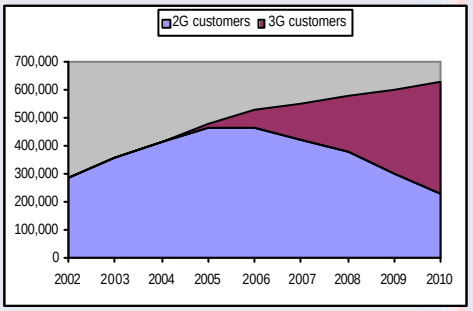
- Still images: MMS
- Moving images*: video clip, etc
- Video Conference**
- Video / audio streaming **
- File transfer*: FTP, etc
- SW download*: games, ID registers, etc
- Location based services*
- Mobile banking / payments*

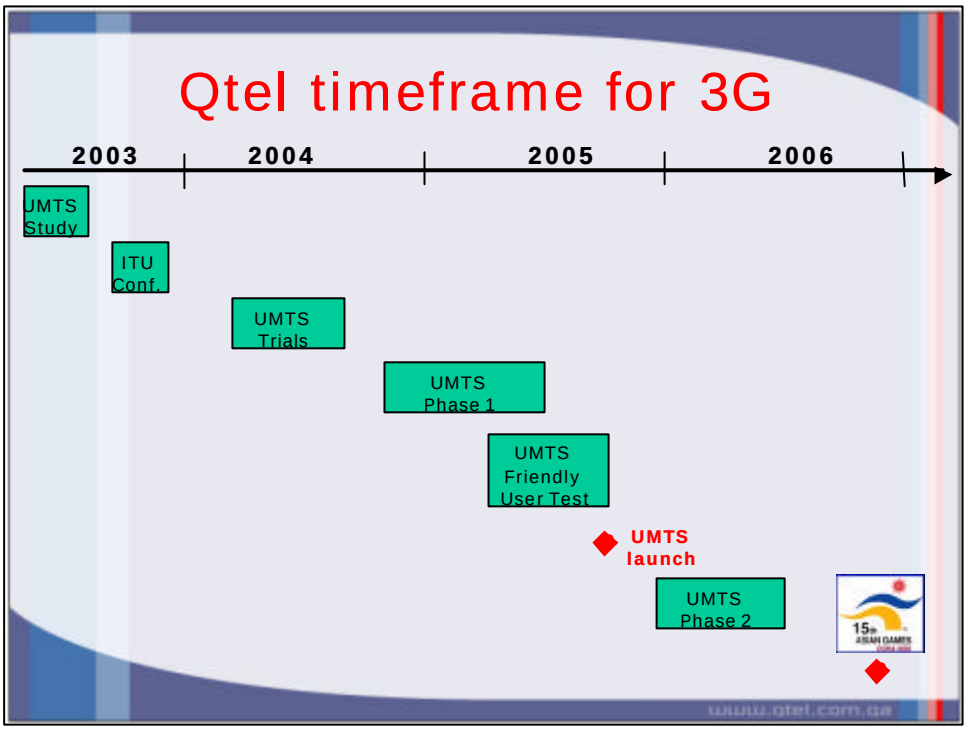
* 3G more suitable than GSM/GPRS

** GPRS not suitable for this application

Migration GSM/GPRS to 3G

- Early adopters of 3G will be high-profile users migrating from GSM/GPRS
- Several customers will remain with GSM/GPRS services for years
- GSM/GPRS customer numbers will peak around 2005/2006




Qtel timeframe for 3G
2003
2004
2005
2006
UMTS Study
ITU Conf.
UMTS Trials
UMTS Phase 1
UMTS Friendly User Test
UMTS launch
UMTS Phase 2
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