IP Network as a Mobile Infrastructure

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- Company overview
- Service trends in Mobile
- Requirement for the IP Transport





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VODAFONE GROUP PLC



Overview of Vodafone Group Plc

151.8 million proportionate customers*

60,000 employees worldwide**

Equity interests in mobile networks in 26 countries across 5 continents

Vodafone present in further 14 countries through Partner Networks

Market Capitalisation £93bn***

Figures as at 31 Dec 2004* Approximate average for FY 2003/04** Figures as at 12 November 2004***



Our vision

The world's mobile communications leader – enriching customers' lives, helping individuals, businesses and communities be more connected in a mobile world.





Corporate history

* Wudatrose Partner Network

Racal Strategic Radio Ltd set up to bid for UK licence

1984

1990

Vodafone Malta was the company's first controlled overseas operation

June 1999

Vodafone Airtouch Plc created as a result of merger between Vodafone Group Plc and Airtouch Communications Inc.





Financial position

Key Financials for Full Year Results



Largest mobile brand



VODAFONE K.K.



Vodafone K.K. Company Profile / Financial Status

Company Outline

Company Name	: Vodafone K.K.
Representative Executive Officer, President & CEO	: Shiro Tsuda
Headquarters	: 2-5-1 Atago, Minato-ku, Tokyo 105-6205
Start of services	: April 1, 1994
Capital	: ¥177,251.2165 million
Employees	: Approx. 2,700

6 Business Summary

	2002	2003
Operating Revenue	¥1,796.9 billion	¥1,655.7 billion
Operating Profit	¥275.6 billion	¥185.0 billion
Ordinary Profit	¥271.9 billion	¥181.2 billion
Net Profit	¥79.5 billion	¥100.0 billion



10

Japan Market share



Vodafone K.K. Market Innovations



vodafone

Vodafone K.K. Market Innovations

1997, November	First in Japan	Full mobile phone email service begins
1998, November	First in mobile phones	Ring tone melody download service SkyMelody begins
2000, October	First in Japan	Area specific information service Station begins
2000, November	First in mobile phones	Phones with built-in digital cameras launched
2000, December	First in the world	TFT color display phones launched
2002, August	First in the world	Mobile phone with bar code reader function launched
2002, December	First in the world	QVGA color display phones launched
2002. December	First in the world	3G commercial service based on 3GPP launched
2003, May	First in the world	Megapixel camera phone launched
2003, November	First in mobile phones	Vodafone Biz Access allows corporate customers to use web packet communications at a flat rate
2003, December	First in Japan	Mobile phone with Built-in TV Tuner
2003, December	First in the world	Mobile phone with Bow-Lingual CONNECT dog bark translator launched
2004, June	First in mobile phones	Mobile phone with Touch Pad Control
2004, July	First in the world	Mobile phone with Optical Zoom



Vodafone K.K. Corporate History

• Milestones

1986,	December	RAILWAY TELECOMMUNICATION established
1989,	May	RAILWAY TELECOMMUNICATION and former JAPAN TELECOM merge, company name changed to JAPAN TELECOM
1991,	July	Tokyo Digital Phone Co., Ltd. established, followed by two other Digital Phone and six Digital TU-KA companies in their respective service areas
1994,	April	Tokyo Digital Phone begins services, followed by the two other Digital Phone and six Digital TU-KA companies in their respective service areas
1998,	November	IMT-2000 Planning Co., Ltd. established
1999,	October	Digital Phone companies and Digital TU-KA companies adopt the J-PHONE brand J-PHONE is launched as a national brand
2000,	April May October	J-PHONE Planning Co., Ltd. is renamed J-PHONE Co., Ltd. J-PHONE Co., Ltd. becomes the J-PHONE Group holding company J-PHONE East, J-PHONE Tokai and J-PHONE West companies jointly service all Japan
2001,	October November	J-PHONE becomes part of the Vodafone Group J-PHONE Co., Ltd. formed through merger of holding company with J-PHONE East, West and Tokai
2002,	August	JAPAN TELECOM changes name to JAPAN TELECOM HOLDINGS, and JAPAN TELECOM HOLDINGS establishes holding company structure
2003,	June October December	J-PHONE introduces executive committee corporate governance structure J-PHONE Co., Ltd. changes name to the former Vodafone K.K. JAPAN TELECOM HOLDINGS changes company name to Vodafone Holdings K.K.
2004,	October	Vodafone Holdings K.K. merges with the former Vodafone K.K., surviving entity changes name to Vodafone K.K.



Agenda

Company overview

Service trends in Mobile

Requirement for the IP Transport



The BASIC – How to be profittable

Increase revenue

Create new services with Speed Enhance services with quality

Lower OpEx

Transmission and Transport cost Operation / configuration cost Support / Maintenance cost Topology + Traffic modeling

Lower CapEx

Equipment cost Design cost (standard configuration) Eliminate overhead





Video Calling







Full track music downloads











Service trend keywords in Mobile

Multimedia

- Music download
- Video calling, Video message, Picture message
- Streaming, Mobile TV
- Security
 - Mobile commerce, Banking Payment
 - Corporate data access

Entertainment, Online Game

 Alternative access, Fixed & Mobile convergence, Packet stream optimization, PoC, Presence service, M2M and more





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Requirement for the IP Transport



W-CDMA Packet network overview



Architectural characteristics (transport)

Concentration point (Gi)

All IP traffic goes through this point.
Can cause long backhaul issues and bottle neck issues as well.
Balance between performance and

operational aspects.

• 1:100:1000

Increase in # of lines at the edge causes OpEx issues.



dafone

Data size per session

- Tendency to increase while contents get richer and shifting to multimedia. e.g. music download, picture message.
- Still range of several hundred kb to mb.
- Radio area and billing implications.



Streaming

- UDP RTP(like) traffic
- Latency variance sensitive
- CDN type of arrangement and caching difficult
- Traditional controversy: QoS vs Over provisioning, but under access (radio) limitation



Realtime traffic

- "Conversational Traffic Class" for realtime traffic
- IMS and All IP vision
- Alternative radio access will affect this



Security

- MS to Gi is secure (transportation)
- Traffic separation need to be done apps by apps
- Authentication & Authorization can involve various information like IMSI, Subs info, USIM and others
- Encryption



Requirement for IP Network

Future proof

- V6 (and migration), QoS,
- Security (Application Level and Network level)
- Flexibility
- Cost effective
 - Balancing OpEx and CapEx



Consolidation and Convergence

- Nothing differs from...
- Consolidation
 - 9 to 3 to 1
 - PDC + W-CDMA(3G) disparate network
- Convergence at various aspects
 - RAN, IMS, MPLS+VPN ...
 - All IP Vision



Summary

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Thank you for listening, any questions?



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