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## **Caribbean Countries - Small Island Nations**

### **1. SYNOPSIS**

The Caribbean countries are in the process of deregulating their telecommunications sectors, awarding new licences throughout the region, and bringing an early end to Cable & Wireless' decades of monopoly. With revenues rising and competition increasing, the Caribbean is showing great potential for investment. Digicel, AT&T Wireless (now Cingular) and Cellular One have been very active, purchasing licences and launching service throughout the region in an attempt to secure their position as regional players. This report provides an overview of the telecom markets in Anguilla, Antigua & Barbuda, Aruba, Bahamas, Barbados, Bermuda, Cayman Islands, Dominica, Granada, Netherlands Antilles, St Kitts & Nevis, St Lucia, St Vincent & the Grenadines and Trinidad and Tobago.

### **2. TELECOMMUNICATIONS MARKET**

#### **2.1 OVERVIEW**

The Caribbean has the world's largest group of countries with small populations. Encompassing 27 nations, the region features some of the most advanced telecommunications networks in the world. Most have fibre optic cabling and digital switching capability. Virtually every country offers a full range of services, from basic telephony and cellular communications to Internet access and data processing. In fact, despite being characterised by small markets in terms of population, telecommunications has become one of the Caribbean's major growth industries.

With its long history in the region, Cable and Wireless (C&W) has been the monopoly provider of both international and domestic telephone services, but agreements have already been reached in a number of countries that has put an end to its control. Most of the governments are eager to liberalise the telecoms market to meet obligations set by the World Trade Organization (WTO). C&W has interests in numerous English speaking Caribbean countries, including stakes in the telecom operators of Anguilla, Antigua & Barbuda, the British Virgin Islands, the Cayman Islands, Jamaica, Montserrat and the Turks and Caicos Islands.

In 2000, nine of the 13 states in the Eastern Caribbean region established the Eastern Caribbean Telecommunications Authority (ECTEL) to develop comprehensive legislation and a regional regulatory framework, challenging C&W's long-standing exclusivity. In early 2001, C&W agreed to dismantle its monopoly in five of the islands – St Lucia, Dominica, Grenada, St Kitts & Nevis and St Vincent – in order to allow full competition within 12-18 months (see chapter 3.1.1).

In October 2001, C&W reached an agreement with the government of Barbados to open the market by August 2003. In Anguilla, another agreement was reached in early 2003 to end C&W's monopoly before it was due to expire in 2018. Negotiations are also underway to speed up the end of its monopoly over basic services in Trinidad;

the government here has committed to allow full competition in the basic services market by 2010 at the latest.

Digicel, AT&T Wireless (now Cingular) and Cellular One have been very active, purchasing licences and launching service throughout the region in the past few years in an attempt to secure their position as regional players and increase their share of the Caribbean mobile market. In the future, the Caribbean mobile market will begin to resemble the Latin American market, with the region's entire subscriber base concentrated in the hands of three to four players.

### **3. REGULATORY ENVIRONMENT**

#### **3.1 EASTERN CARIBBEAN TELECOMMUNICATIONS AUTHORITY (ECTEL)**

The Eastern Caribbean Telecommunications Authority (ECTEL) was established in May 2000 by the governments of five Eastern Caribbean states – Dominica, Grenada, St Kitts and Nevis, St Lucia, St Vincent and the Grenadines – to help take a uniform political stand while negotiating with Cable & Wireless West Indies (C&W) over the liberalisation of their respective telecom markets.

ECTEL was a result of the Telecom Reform Project (TRP) that the Organization of Eastern Caribbean States (OECS) countries formed to develop comprehensive telecommunications legislation and a regional regulatory framework, challenging C&W's long-standing monopoly in the region.

OECS countries are:

- Grenada;
- St Lucia;
- St Vincent;
- Dominica;
- St Kitts & Nevis;
- Antigua;
- Montserrat;
- Anguilla;
- British Virgin Islands.

ECTEL's main objective is to make policy decisions on telecom issues affecting the islands. Nevertheless, implementation of ECTEL decisions falls onto each island's regulatory entity or National Regulatory Telecommunications Commission (NRTC).

##### *3.1.1 Deregulation in ECTEL countries*

Initially, C&W was reluctant to give up its monopoly position and threatened to pull out of the region if the markets were opened to competition. C&W identified St Lucia and St Vincent and the Grenadines as the first countries it would leave since its licences in these markets expired in early 2001. However, in April 2001, the five ECTEL countries signed a Memorandum of Understanding (MoU) with C&W that established the framework for phased liberalisation over a period of 12-18 months.

The first phase allowed for the licensing of domestic mobile concessions, Internet services, resale of international switched minutes, and VSATs for call centres, data entry and informatics businesses. The second phase introduced competition in fixed domestic and international services. All remaining telecom services would be liberalised during the third phase.

As part of the process, ECTEL countries agreed to form three working groups to settle legal and regulatory issues, interconnection matters, and tariffs and rebalancing. In addition, both ECTEL and C&W accepted Dominica-based Marpin Telecoms & Broadcasting Co, a local cable TV service provider, as the first new telecom operator offering telephony services in the islands.

However, C&W's recognition of Marpin Telecoms as a competitor did not stop it from refusing to interconnect Marpin's network. The angry dispute that followed only came to an end after Marpin filed a complaint against C&W with the US Federal Communications Commission (FCC). Today, Marpin continues to challenge C&W for its share of the telephony and Internet market.

Liberalisation in the mobile sector started during 2002 when Digicel (Mossel) and AT&T Wireless won licences in four of the five ECTEL countries. French company GENSAT acquired three licences (pending the decision of a 4<sup>th</sup> licence in Grenada) and domestic operator CariGlobe Telecommunication acquired a licence in St Kitts and Nevis.

#### **4. FIXED NETWORK OPERATORS**

##### **4.1 CABLE & WIRELESS WEST INDIES**

C&W came to the Caribbean over 125 years ago, when Britain reigned over numerous island colonies there, and even as many of the islands gained their independence C&W remained and gained exclusive licences to provide and maintain telecoms services on several Caribbean islands.

C&W West Indies is the dominant player in the geographically-extensive Caribbean region, in many cases owning all or the greater part of both international and local switched voice, data and Internet operations. It operates in 15 Caribbean countries: Anguilla, Antigua & Barbuda, Barbados, Bermuda, British Virgin Islands, Cayman Islands, Dominica, Jamaica, Grenada, Montserrat, St Kitts & Nevis, St Lucia, St Vincent & the Grenadines and Turks & Caicos Islands; and also has a partnership with Telecommunications Services of Trinidad and Tobago Ltd (TSTT).

In April 2003, C&W expanded its operations to Martinique and Guadeloupe, breaking up the virtual monopoly held by France Telecom, and increasing to 17 the number of islands in which it operates. C&W is initially offering data and voice transmission solutions such as International Private Leased Circuits, Frame Relay, Voice over Internet Protocol (VoIP) and Internet Protocol / Virtual Private Network (IP-VPN) for corporate entities. It will provide increased connectivity within and between Martinique and Guadeloupe, to mainland France and to the rest of the world.

C&WWI offers:

- Data & IP services – Internet, dedicated Internet, iPass, Web hosting, Switched 56, Integrated Services Digital Network (ISDN), national and international leased circuit, Very Small Aperture Terminal (VSAT) and Frame Relay;
- Voice services;

- Mobile services;
- Business solutions.

C&W e-Business, based in Bermuda, was launched in mid-2000, offering offshore e-commerce solutions, including multi currency, on-line payment processing and Web-hosting. Other advances in the region include the launch of Asymmetrical Digital Subscriber Line (ADSL) services in Panama and pre-launch trials in a number of other Caribbean operating units.

C&W has tried to offset the loss of monopoly positions by launching new services such as GSM and ADSL. In August 2002 the company announced that it would convert its existing Time Division Multiple Access (TDMA) network to GSM/GPRS across its entire Caribbean operations.

For more information, see separate report: [\*Cable & Wireless plc.\*](#)

## **4.2 CENTENNIAL COMMUNICATIONS**

Founded in 1988, Centennial Communications Corp is an independent telco serving markets with a combined population of over 19.3 million in the Caribbean and the United States. In the Caribbean, Centennial is a facilities-based, fully-integrated communications service provider offering both wireless and broadband voice, data, Internet and video services to business and residential customers. In the US, it is a regional wireless service provider in small cities and rural areas. Centennial Communications draws over 40% of its sales from the Caribbean.

Centennial's Caribbean operations offer service to a population of approximately 13 million in Puerto Rico, the Dominican Republic, and the US Virgin Islands using digital wireless and terrestrial broadband telecommunications technologies. Centennial uses Code Division Multiple Access (CDMA) digital wireless technology that is upgraded for high-speed data in all of its markets in the Caribbean. The company has more than 2,200 fibre optic terrestrial route kilometres and 5,000km of coaxial cables installed in the Caribbean. These Caribbean wireless and fixed-line networks are connected by Centennial's submarine fibre optic capacity to the company's switch in Miami. This shared, all-digital network supporting voice, data, Internet and video creates substantial economies of scale and allows the company to efficiently serve high-usage customers.

## **5. TELECOMMUNICATIONS INFRASTRUCTURE**

### **5.1 INTERNATIONAL**

Up to 23 submarine cable systems cover the Caribbean region with major fibre optic systems, including the new ARCOS-1 (Americas Region Caribbean Ring System).

Major companies are involved in these systems providing direct connectivity to the US, Central America, the Caribbean, and Europe. They provide the Caribbean with

the newest multimedia fibre optic transmission systems, giving high-speed voice, data, video, and Internet access throughout the region.

Some of the major cable systems include:

- Panam Americas 2;
- Maya-1;
- Unisur;
- ECFS;
- Columbus-2 C;
- Columbus-2 A;
- Columbus-2 A;
- Americas-1 North;
- Americas-1 South;
- TCS-1 (Transcaribbean System 1).

High quality undersea international links are provided by the Eastern Caribbean Fibre Optic System (ECFS), which links 17 islands from the British Virgin Islands in the north to Trinidad and Tobago in the south. It is considered the world's most advanced telecom cable link. The ECFS is complemented by an upgraded Digital Eastern Caribbean Microwave System.

In 2001, Bermuda-based carrier [Global Crossing \(Archived\)](#) (see separate report) activated the Pan American Crossing (PAC-1), a 10,000km submarine cable connecting the US and Mexico to Central America and the Caribbean.

Caribbean Crossings has developed a submarine fibre optic cable system – Bahamas Internet Cable System (BICS) – that links the four major islands of the Bahamas with the US. BICS is a 600km non-repeater system that uses state-of-the-art optical transmission technology. Caribbean Crossings' purchase of Dedicated Internet Access and Miami metro capacity from EPIK Communications Inc enables fast, reliable connectivity between the Bahamas and the US.

The Americas Region Caribbean Optical Ring System (ARCOS) was developed by Bermuda-based telecom carrier New World Network Ltd. The system connects the US, Bahamas, Turks & Caicos, Dominican Republic, Puerto Rico, Curaçao, Venezuela, Colombia, Panama, Costa Rica, Nicaragua, Honduras, Belize and Mexico.

ARCOS is an 8,600km fully redundant ring, consisting of both repeatered and non-repeatered cable segments using Dense Wavelength Division Multiplexing (DWDM) and Synchronous Digital Hierarchy (SDH) technology. The system operates at 15Gb/s with a multiple upgraded design capacity of over 4Tb/s.

## 6. COUNTRY OVERVIEWS

### 6.1 INTRODUCTION

The Caribbean region extends in a broad arc of over 4,000km from the Bahamas in the north to Guyana and Suriname in the south.

Only the small island nations are covered in this report. For information relating to Belize, Cuba, Dominican Republic, Haiti, Jamaica and Puerto Rico, see separate reports: [Latin America](#).

Virtually all the Caribbean small island nations have fully digital networks.

Up-to-date telecom statistics on some of these countries is sometimes inconsistent or unavailable, so the latest reliable data has been used in the tables below.

**Table 1 – Population and GDP of selected Caribbean countries – 2003**

Country	Population	GDP (US \$billion)
Anguilla	13,000	0.1*
Antigua & Barbuda	79,000	0.8
Aruba	97,000	1.9*
Bahamas	317,000	5.3
Barbados	271,000	2.6
Bermuda	64,000	2.3
Cayman Islands	39,000*	n/a
Dominica	71,000	0.3
Grenada	105,000	0.4
Netherlands Antilles	220,000	2.5
St Kitts & Nevis	47,000	0.4
St Lucia	161,000	0.7
St Vincent & Grenadines	109,000	0.4
Trinidad & Tobago	1,313,000	10.2

(Source: Paul Budde Communication based on World Bank and industry data).

Note: \*Figure is for 2002.

**Table 2 – Fixed lines in service (selected countries) – 2003**

Country	Main lines	Teledensity
Bahamas	131,700	41.5%
Barbados	134,000	49.7%

(Source: Paul Budde Communication based on ITU data)

**Table 3 – Fixed lines in service (selected countries) – 2002**

Country	Main lines	Teledensity
Anguilla	6,200	50.0%
Antigua & Barbuda	38,000	48.8%
Dominica	23,700	30.4%
Grenada	33,500	31.7%
St Lucia	51,100	32.0%
St Kitts & Nevis	23,500	50.0%
St Vincent	27,300	23.4%
Trinidad & Tobago	325,100	25.0%

(Source: Paul Budde Communication based on ITU and market data)

**Table 4 – Fixed lines in service (selected countries) – 2001**

Country	Fixed lines	Teledensity
Aruba	37,100	35.0%
Bermuda	56,200	86.9%
Cayman Islands	38,000	84.9%
Netherlands Antilles	81,000	37.2%

(Source: Paul Budde Communication based on ITU data).

## 6.2 ANGUILLA

C&W is the sole owner and monopoly provider of all fixed-line telecom services in Anguilla. However, in early 2003 the government reached an agreement with C&W to liberalise the telecom market in advance of 2018, the year when C&W's exclusivity was due to expire. A first mobile licence was granted in March 2003 to AT&T Wireless (now Cingular). The telecom regulatory authority is the Ministry of Communications.

Anguillan fixed-line penetration rate is around 50%, similar to developed economies and to other Caribbean countries such as Antigua, Barbados and St. Kitts & Nevis.

In 1973, C&W was granted two separate licences for the provision of international and domestic telecom services. On their expiry in 1988, these were replaced by a single 30-year licence. Prior to C&W taking over telecom services in Anguilla, the island had no telecommunications infrastructure for many years following the devastation of Hurricane Janet.

Telephone, digital cellular, Internet access, leased circuit and toll-free services are available, as well as C&W Caribbean phone cards, PBX and other equipment. C&W offers frame relay, X.25, leased lines and other data communication services. C&W's fixed telephone network has been completely digitised since 1986 and its mobile network uses digital TDMA technology.

Having won a cellular licence in March 2004, AT&T Wireless (now Cingular) began building a GSM/GPRS/EDGE network which would be completed in the first half of 2005.

## 6.3 ANTIGUA & BARBUDA

Antigua & Barbuda plans to fully liberalize its telecom market by 2010-2012. Government-owned Antigua Public Utilities Authority (APUA) is the monopoly provider of all domestic telephone services, while Cable & Wireless Antigua & Barbuda provides all international telecommunication services. The telecom regulatory authority is the Ministry of Public Works and Communications.

Three GSM operators compete in the mobile telephone market:

- APUA PCS;
- C&W Caribbean Cellular Antigua;
- Antigua Wireless Ventures (AT&T Wireless, now Cingular).

APUA provides telephony, electricity and water services. Its subsidiary APUA PCS was the first operator in the English speaking Caribbean to launch GSM services, supplied by Nortel Networks, in January 2000. It introduced GPRS services in 2003.

Antigua & Barbuda is served by the Digital Eastern Caribbean Microwave System and also by the Eastern Caribbean Fibre System (ECFS), a submarine fibre optic cable system installed in 1995.

#### **6.4 ARUBA**

All domestic and international fixed-line telecom services in Aruba are provided by government-owned Servicio di Telecomunicacion di Aruba (Setar). In the mobile sector, Digicel competes with Setar since 2003. The Ministry of Traffic and Telecommunications (MTT) is the telecom regulatory authority.

The local telecom infrastructure consists of 5ESS high-capacity digital exchanges capable of providing a wide range of advanced telecom services. These exchanges are interconnected by means of fiber optic and digital microwave networks. For international communications, Setar has a network consisting of a 5ESS exchange, fiber optic connectivity through the Americas I, Americas II, Columbus II, Pan-American, Antilles I, Taino Carib and Alonso de Ojeda cable systems, Standard A and Standard B earth stations, an international telex exchange and digital microwave systems.

ISDN, digital leased lines, Frame Relay and DSL services are available in Aruba. The island is also served by two GSM networks, operated by Setar (launched December 2001) and Digicel (launched July 2003). Digicel's network was supplied by Ericsson and offers 90% population coverage. In July 2004, Setar launched GPRS services, with equipment supplied by Nortel Networks.

Internet services are provided by three Internet Service Providers (ISPs) – Setarnet, CNet and One Happy Island.com. Setarnet offers dial-up, ISDN, 123 Instant Access, NetRelay leased line services, domain name registration and Web hosting.

In July 2004, Aruba Wireless Networks announced it was supporting the ratified 802.11i Enhanced Security using Advanced Encryption Standard. Its Wireless Local Area Network (WLAN) switching solution would process authentications and encryption at one centralized system.

#### **6.5 BAHAMAS**

Bahamas Telecommunications Company (BTC) is the incumbent provider of telecom services in the Bahamas. Previously known as BaTelCo, the company is wholly state-owned and is the exclusive provider of cellular and fixed-line services. Since 2000, repeated attempts to privatise BTC have failed. However, in November 2004 the government was still open to favourable bids for the purchase of 49% of BTC's shares, and the process of liberalization was under way. The government was hoping

to raise approximately US\$250 million from the sale. In mid-2004, Blue Telecom, TransWorld Telecom and BahamasTel all submitted bids in exchange for 320,000 customers and a two-year exclusivity period for local services.

Under the Bahamas Telecommunications Corporation Act 1966, BTC acted as regulator as well as operator, issuing all licences, including radio frequency licences. The Bahamas Telecommunications Act 1999 created a new regulatory framework for the telecom sector, to remove BTC's monopoly rights and to establish a licensing regime. Following the promulgation of the Public Utilities Commission (Amendment) Act 1999, the regulatory rights and functions of BTC were transferred to the Public Utilities Commission (PUC).

Liberalization first began with the opening of the value added services market in early 2000. In March 2000, Cable Bahamas was authorised to lease circuits and provide public Internet services in competition with BTC. In April 2001, Caribbean Crossings, a Cable Bahamas subsidiary, was authorised to build and operate a new fibre optic cable link between the Bahamas and Florida. However, in September 2003 it was announced that BTC would no longer have to provide leased circuits to any rival operator for fixed-line telephony connection during its fixed-line exclusivity period.

BTC not only owns the only Public Switched Telephone Network (PSTN), but also provides the only mobile service. It owns and operates the ISP BatelNet, and also owns 10% of the shares in Cable Bahamas, which has an extensive fibre optic network linking the majority of homes in the Bahamas.

Cable Bahamas is a publicly traded company that provides cable television and high-speed Internet services to individuals and businesses. Web hosting is also available through another BTC subsidiary, Maxil Communications, which operates an Internet data centre in Nassau.

## **6.6 BARBADOS**

In October 2001, the government signed an MoU with C&W that paved the way for full scale competition in all aspects of telecommunications, putting an early end to the pre-existing monopoly arrangements. Full liberalization is gradually taking place through a three-stage program. Phase 1 of the liberalisation process took place in August 2003 with the opening of the mobile market. Phase 2 was completed in October 2004, with the granting of three fixed wireless licences. The third phase will include opening up of the international market.

Until 2002, telecom services were provided by C&W BARTEL (CWBARTEL) and C&W BET (CWBET) under exclusive national and international licences respectively. Both licences expired in 2011. Cellular services were provided by C&W Caribbean Cellular (Barbados) (CWCC), a joint venture owned by CWBET and CWBARTEL, under the licence of CWBARTEL. In 2002, these subsidiaries were amalgamated into a single entity, Cable & Wireless (Barbados), in which C&W owns around 81%.

Mobile telephony was introduced in Barbados in 1990. In early 2004, there were around 140,000 mobile subscribers.

In August 2003, the government issued four mobile licences, to: C&W (Barbados), Cellular Communications (Barbados) (AT&T), Digicel (Barbados) and Sunbeach Communications. The companies were issued three licences: a carrier licence enabling them to build their networks, a service provider's licence and a spectrum licence, which would authorise the use of frequencies for the provision of mobile communications services. While C&W still held an exclusive licence to provide domestic telecom services, it nevertheless had to be issued a new licence for its cellular operations, since it was no longer an exclusive service provider in that field.

Mobile competition in Barbados finally began in February 2004, when both AT&T and Digicel launched services. Sunbeach began to build a GSM/GPRS network, but in June 2004 it postponed the launch of mobile service indefinitely whilst it finalised agreements with its funding partners.

In October 2004, the government granted three fixed wireless licences, to: Wiscom Technologies, Last Mile Holdings and Tele-Barbados, all based in the Caribbean. Telecom services would start around mid-2005, as the companies needed to negotiate interconnection with C&W.

Wiscom Technologies announced it would launch wireless broadband services using Wireless Local Loop (WLL) technology with transmission speeds of minimum 256Kb/s. It expected to offer voice, data and multimedia video-streaming services countrywide and began constructing an IP-based Multi Protocol Label Switching (MPLS) network utilising WiMAX and WiFi technologies supplied by Lucent and Nortel Networks.

Access to the Internet in Barbados is provided by over 20 ISPs, the largest of which are C&W BET, CaribSurf, Sunbeach and CariAccess. There are also more than 20 Internet cafes throughout Barbados.

## **6.7 BERMUDA**

One of the richest countries in the world, Bermuda has developed into a highly successful offshore financial centre. It boasts one of the world's first fully digital telecom networks, with fibre optic trunk lines. Overseas links are fibre optic cables, and there is considerable redundancy built into the system to negate the effect of faults.

Bermuda deregulated its telecoms market in 1996 and has managed to take advantage of the subsequent Internet and communications explosion to position itself as a global hub for e-commerce. The government has established an effective legislative framework for e-commerce and sophisticated Internet facilities are readily available throughout the island. As a result of deregulation, long-distance call costs have fallen by more than 60% since 1997 and are expected to fall further.

The two major telecom providers are C&W and TeleBermuda International Ltd (TBI), a subsidiary of GlobeNet Communications Group. Both have opened e-commerce support centres which provide hosting services. C&W has had a presence in Bermuda for over a century. In addition to providing IDD to over 200 countries, its digital fibre optic and satellite communication systems facilitate a wide range of business communication services. Established in 1996, TBI is licensed to provide long-distance voice, data and Internet services. In addition to international long-distance voice services, TBI offers TBiNET, a dedicated Internet service; international private leased circuits; international frame relay; and a server co-location facility.

The Bermuda Telephone Co Ltd (BTC) is a full service local exchange provider for Bermuda-based voice, high-speed data access and international carrier access services to the residential and business markets. North Rock Communications also offers a range of Internet, wireless and long-distance and e-commerce products and services.

Licensed in mid-1998, Bermuda Digital Communications Ltd (BDC) provides wireless telecom service for both voice and data. It offers local and long-distance service through agreements with BTC, TBI, and C&W. Local calls are switched to the respective carriers by BDC's Mobile Telephone Switching Office (MTSO). International calls are switched by the MTSO to either C&W or TBI.

The island is served by three mobile networks:

- **BDC (CellularOne)** – launched AMPS services in July 1999; upgraded to TDMA in January 2001, to CDMA in mid-2003, and to CDMA2000 1xEV-DO (supplied by Lucent Technologies) in mid-2004;
- **AT&T Wireless (now Cingular)** – GSM-1900, launched October 2001 by BTC, upgraded with GPRS data services in September 2003. AT&T Wireless took over the BTC network in November 2002;
- **BTC Mobility** – GSM-1900, launched Oct 2002;

Internet access is provided by a number of ISPs including:

- **FKBNet** – began in mid-2002 as a family Internet service;
- **Logic Communications Ltd** – the original ISP, now with both DSL and 56Kb/s service for individuals and businesses;
- **Bermuda Digital Communications** – fixed-broadband-wireless-access network;
- **North Rock Communications** – high-speed wireless Internet connection through Connect@home service;
- **Transact-E-biz** – DSL and 56Kb/s service for residential and registered businesses;
- **TBI and C&W** – business users only. The business-only service from C&W and TBI is substantially cheaper than the home or residential user only rate. Bermuda is the only territory in the world where this service is not available to residential users.

Internet penetration is around 70% of households and 90% of businesses. Residential ISPs exclude the cost of a local phone call to access the Internet from local servers, whereas in most other countries, local telephone costs are included. This makes Internet access fees for home use very expensive.

## **6.8 CAYMAN ISLANDS**

C&W (Cayman Islands) was operating in the country under an exclusive franchise since 1966, but in July 2003 it signed an agreement with the Information & Communications Technology (ICT) authority marking an end to its monopoly.

In September 2003, the government granted full-service telecom licences to nine companies: Digicel, AT&T Wireless (now Cingular), CellularOne, CaymanTel, Aviation Communications Ltd, Blue Sky Communications Ltd, GrandTel Ltd, TeleCayman Ltd and Weststar TV Ltd.

The liberalisation process was conducted in phases: alternative ISPs in November 2003, mobile operators in February 2004 and international telephone companies in April 2004.

Digicel, AT&T Wireless and Cellular One were awarded mobile licences in September 2004.

In January 2004, C&W (Cayman Islands) contracted Nortel Networks to supply a VoIP network. It further signed an agreement in June 2004 with US company Net2Phone to offer a range of hosted VoIP services, including VoIP calling cards and prefixed international voice telephony services.

In September 2004, the recorded mobile penetration rate in the Cayman Islands was 222%. This is the highest penetration rate recorded anywhere in the world and reflects the number of subscriptions rather than the number of human subscribers. As in many Caribbean markets, the figure is distorted by the fact that many subscribers have several subscriptions.

## **6.9 DOMINICA**

Telecom services in Dominica are provided by C&W Dominica and by Marpin Telecoms & Broadcasting. Both companies provide telephone services and Internet access.

C&W Dominica, the domestic and international franchise carrier, offers national and international telephone and telex; IDD, 1-800 toll free, national paging and voicemail service, C&W Global calling card, C&W Caribbean phone cards and Internet access. The company is 80% owned by C&W and 20% by the Government of Dominica. Potential local operators have been in conflict with C&W for a number of years and, in September 2002, the company finally agreed to allow interconnection with its network.

Established in 1975, Marpin Telecoms & Broadcasting Co Ltd (formerly Marpin Television – MTV) is a private local company that provides cable TV services to 95% of the island, telephone, dial-up and cable modem Internet service, and data/networking services via Hybrid Fibre Coax (HFC) cable. Marpin is Dominica's largest television provider, delivering more than 52 channels to over 11,300 subscribers. The company continues to challenge C&W for its share of the local telephony and Internet market.

Internet access services include dial-up, DSL, cable modems and dedicated lines such as 256Kb/s up to T1. There are also a number of Internet cafes for the general public.

## 6.10 GRENADA

Liberalisation of the telecom sector in Grenada began in 2000, and the government has granted licences to a number of companies to compete with the incumbent C&W Grenada. However, competition does not exist to any significant extent as C&W continues to provide telecom services on a virtual monopoly basis. A modest degree of competition is only evident in a small number of services, such as customer premises equipment, Internet service and mobile cellular services. Since liberalisation began,

The National Telecommunications Regulatory Commission of Grenada (NTRC) was established pursuant to the ECTEL Treaty (Act 30 of 2000) and the Telecommunications Act (Act 31 of 2000).

### Exhibit 1 – Individual telecom licences granted in Grenada

Company	Month/year	Services
Cable and Wireless Grenada Ltd	10/2001	PSTN, cellular mobile, Internet
Global Network Providers Grenada Inc	01/2002	PSTN, cellular mobile, Internet
Emerging Technology Ltd	02/2002	Internet
BlueStream Ltd	03/2002	Internet
Trans-World Telecom Caribbean Ltd	05/2002	PSTN, cellular mobile
Digicel Grenada Ltd	05/2003	Cellular mobile
Grenada Wireless Holdings Ltd (AT&T)	05/2003	Cellular mobile

(Source: Paul Budde Communication based on NTRC data)

## 6.11 NETHERLANDS ANTILLES

Curaçao is the largest of five Caribbean islands that make up the Netherlands Antilles. The other islands are: Bonaire, St Maarten, St. Eustatius and Saba.

Based in Curaçao, United Telecommunications Services (UTS) is the leading telecom company in the Netherlands Antilles. Together with its subsidiaries, it offers fixed-line telephony, mobile services (D-AMPS and GSM), international telecom services, data communication, Internet access and integrated solutions. It launched Alcatel's MMS solution in August 2004 on all the Netherlands Antilles islands.

UTS was created in February 1999 from the merger of two state-owned companies: Servicio di Telefon (Setel), which held exclusive concessions for local fixed-line and mobile telecommunications; and Antillean Telecommunications Company (Antelecom), responsible for long-distance domestic and international telecommunications.

Private operators have been allowed to offer mobile, Internet and other 'value-added' services, but there is scant competition in fixed-line telephony, where UTS dominates the scene. Officially however, liberalisation began in October 2000, on the island of

St Maarten, when the St Maarten International Telecommunications Services Ltd (Smitcom) began services.

Smitcom is a unit of the St. Maarten Telephone Company (Telem), a corporation 100% owned by the Island Government of St. Maarten. Telem also offers mobile telephony and Internet services branded TelNet.

Telecom companies which operate on the smaller islands include: St. Eustatius Telephone (Eutel), Saba Telephone (Satel) and Telefondienst Bonaire. Telbo operates a GSM network on the islands of Bonaire and Curacao).

Curacao has an excellent telecommunications infrastructure featuring direct telephone links worldwide, digital and computerised systems, satellite link-ups, and fibre optic cabling. Internet connections are also available at competitive prices.

The islands are served by a number of ISPs including Bgate.net, Carib-Online, InterNeeds NV (one of the largest ISPs in Curacao), Smartnet and TerraNet Communications Systems Inc.

Aug-04 Alcatel has announced the provision of its Multimedia Messaging Service (MMS) solution to United Telecommunications Services (UTS) on the Caribbean islands of Curacao, Bonaire, St. Maarten, Saba, St. Eustatius and St. Kitts.

The unique Proxy Platform software architecture used by the Alcatel MMS suite promotes high performance, ease of installation and maximum scalability, making it very cost-effective for UTS. The Alcatel MMS suite solves all content adaptation related issues, allows interoperability with other MMS system vendors and is easily deployed within existing data networks. Moreover, the Alcatel MMS product implements the latest Open Mobile Alliance 1.2 industry specification, and 3GPP R5 and 3GPP2 standards. Service providers benefit therefore from smooth integration of MMS proxy relay, Wireless Application Protocol (WAP) gateway and push proxy into their existing wireless networks.

Additionally, to address billing issues, the Alcatel MMS product embeds a sophisticated billing feature. This will allow UTS to apply various pricing models, whether based on the message type, the message content and even a subscription fee.

## **6.12 ST KITTS & NEVIS**

St Kitts and Nevis are two of the six Leeward Islands, the others being Anguilla, Montserrat, Antigua and Barbuda.

C&W St Kitts & Nevis, formerly St Kitts and Nevis Telecommunications Ltd (SKANTEL), operates the local and international telephone services. Following the sale of shares in 1990 and 1992, the respective share holdings are: C&W 65%, government 17% and the public 18%. The company's services include cellular, paging, telex, prepaid calling cards, leased circuits, frame relay, videoconferencing and high-speed Internet access over a fully digital network. ISDN services are also available.

In May 2002, CariGlobe Telecommunication was awarded a licence to build and operate a mobile network in St Kitts & Nevis. CariGlobe and its partner, United Telecommunication Services (UTS) of Netherlands Antilles, are in the process of rolling out a network based on GSM and GPRS technology. The first phase of the UTS-CariGlobe network development was well underway in November 2004, and involves the construction of nine cell sites. The second phase involves an additional seven sites.

As part of the government's telecom liberalisation policy, The Cable – the only cable operator in St Kitts – was awarded a licence allowing it to provide a full range of telecom services in competition with C&W. Consequently The Cable entered into an Interconnection Agreement with C&W to enable provision of seamless telephone service between customers of both networks.

In March 2004, The Cable signed a MoU with US-based Net2Phone to deploy a VoIP telephony service and offer prefix dial services by the second half of 2004. The Cable has substantially rebuilt and upgraded its infrastructure, including the provision of a fibre optic ring around the island bringing high-speed IP services within reach of all cable TV customers.

### **6.13 ST LUCIA**

One of the Windward Islands of the Lesser Antilles, St Lucia is located midway down the Eastern Caribbean chain, between Martinique and St. Vincent, and north of Barbados.

Although St. Lucia's entire telecommunication market is theoretically liberalized, competition has developed only in mobile and international services, and so far not spread to other market segments. C&W St Lucia is the exclusive domestic telecom provider.

The national incumbent C&W St Lucia operates a fully digital network, and offers a range of services including fixed-line and mobile telephony, Caribbean phonecards, international leased circuits, Internet services and cable TV. It launched GSM/GPRS services in December 2003.

The most striking aspect of the St. Lucia telecom market is the rapid growth of mobile. Competition was introduced in March 2003 when Digicel entered the market as the second operator after C&W. AT&T Wireless (now Cingular) launched a GSM-900/1900 network in April 2003. By September 2003, there were 132,700 mobile subscribers, resulting in an 83% penetration – up from 9% in December 2002. Mobile operators were also allowed to provide their own international services, which led to a significant drop in the country's international call prices.

#### **6.14 ST VINCENT & GRENADINES**

St Vincent & the Grenadines has a fully digital telephone system and a deregulated telecom market. The National Regulatory Telecommunications Commission (NTRC) was established to coordinate an effective regulatory regime following the passage of the Telecommunications Act 2001.

The incumbent C&W St Vincent & Grenadines operates both national and international telephony, as well as data, Internet and public phones. C&W Caribbean Cellular, a subsidiary of C&W, provides cellular phone service.

Since the telecom sector was opened to competition, Digicel and AT&T (now Cingular) launched GSM-900/1800 networks in March and June 2003 respectively.

#### **6.15 TRINIDAD AND TOBAGO**

Trinidad and Tobago (T&T) are the most southerly islands in the Caribbean. Telecommunications have been a monopoly of the Telecom Services of Trinidad and Tobago (TSTT), however the government began the process of liberalisation in 2001 and has agreed to liberalise the telecom market in advance of 2009, the year when TSTT's exclusivity was due to expire.

The Telecommunications Authority of Trinidad and Tobago (TATT) was established under the Telecommunications Act 2001 to regulate and monitor the sector. Competition was first introduced for value-added services, cable TV, broadcasting and satellite services. A Telecommunications (Amendment) Bill, aimed at encouraging investment and competition, was introduced in March 2004.

In September 2004, TATT began the process of awarding two new mobile licences, which would introduce competition in mobile telephony. Spectrum would be made available in both the 800MHz and 1900MHz ranges. The country's mobile penetration, which was around 45.8% in mid-2004, is expected to rise dramatically once competition is introduced. However, it will take some time for the new operators to build out their networks; therefore service start-up is not expected before 2006.

TATT also plans to begin regulating VoIP companies in January 2005.

TSTT held a 20-year exclusive licence for local, domestic and international long-distance services from 1989 to 2009. Owned by C&W (49%) and the government of T&T (51%), it provides telephony, Internet and mobile services to individuals and businesses.

TSTT has a fully digital network infrastructure. Its transport network is based on a fibre optic backbone supported by microwave radio systems. TSTT announced plans to invest over US\$112 million during its 2004/05 financial year to modernise and expand its network

With around 550,000 subscribers in August 2004, TSTT is the sole mobile provider, and operates both TDMA and GSM/GPRS networks. However, it is encouraging its TDMA subscribers to migrate to its GSM1800 service, offering discounts to those

who make the transition. In May 2004, it stopped activating new postpaid TDMA phones, but continues to activate prepaid TDMA phones.

Dial-up Internet access is available from TSTT and another seven ISPs. Besides dial-up, Internet connectivity options include: leased lines and ADSL (TSTT); satellite (Starworx and DirecPC); wireless (Cariblink's Proximity@Home and Lisa Communications' BlueSky); and cable modem (Cable Company of T&T's Fiberline). There are also numerous Internet cafes on the islands.

T&T has 21 radio stations, three local TV stations, two cable TV companies (Cableview and Transcable), and one satellite TV operator (DirecTV).

## **7. INTERNET MARKET**

### **7.1 OVERVIEW OF THE INTERNET MARKETS**

Internet usage is at an all time high and growing more rapidly than ever in the Caribbean countries, however, penetration across the region was estimated at only about 5.3% in early 2004. Although the local markets are small, the Internet is becoming an increasing source of revenue and features some of the most advanced networks in the world.

Many of these markets have been accustomed to high prices for low-quality connectivity in monopoly environments. This is changing as markets liberalise and competition appears on even the smallest islands. Government-sponsored initiatives and the establishment of 'e-zones' are encouraging new entrants, increasing competition, and stimulating demand for broadband Internet connectivity and International Private Leased Circuits (IPLC's) in the region.

While a good range of Internet access technologies are available across much of the region, dial-up connections remain the most common form of access; various other technologies are available including Digital Subscriber Line (DSL), wireless/satellite and cable modems.

On the whole, the cost of connectivity is high. Indeed, efforts are being made to increase Internet accessibility, but former and current telephone monopolies have restricted Internet growth by refusing to connect competing ISPs to their networks, resulting in re-routing to the US and hence, a very slow service.

A number of Caribbean countries are using favourable tax laws to develop Internet business. For example, in Netherlands Antilles a special tax law for international Internet companies came into force in 2001 to attract e-commerce companies.

Anguilla, Bermuda, Barbados, Bahamas, Cayman Islands, St Lucia and Netherlands Antilles have a full suite of e-commerce solutions, advanced telecom services and e-banking systems.

Teleglobe's investments in the region's fibre optic cable and satellite systems have enabled it to become a leading provider of global Internet connectivity services in the

Caribbean. The company's worldwide backbone provides connectivity to Antigua, Aruba, Bahamas, Barbados, Cayman Islands, Curaçao, Dominican Republic, Grenada, Jamaica, St Martin, Trinidad and Turks and Caicos.

More than 25 ISPs combine to claim over 40% of the region's market share. With its monopoly position in most of the region's countries, C&W's dominance in the Internet sector has increasingly come under pressure and the company is beginning to feel the heat from Caribbean liberalisation, as its regional monopoly is threatened by deregulation in the sector.

### 7.1.1 Internet statistics

The most reliable market estimates placed the number of Caribbean Internet users at roughly 2.1 million in early 2004, representing a penetration rate of 5.3%.

According to the World Economic Forum, Bermuda has the highest PC penetration and Internet usage amongst the Latin American and Caribbean nations.

Available statistics on the Caribbean nations are often inconsistent, as can be seen by comparing the ITU and CIA data below.

**Table 5 – Internet users in selected Caribbean nations – 2001 - 2003**

Country	2001	2002	2003	Penetration
Aruba	24,000			22.6%
Antigua & Barbuda	7,000	10,000		12.8%
Bahamas	16,900	60,000	84,000	26.5%
Barbados	15,000	30,000	100,000	37.0%
Bermuda	30,000			46.4%
Dominica	9,000	12,500		16.0%
Grenada	5,200	15,000	19,000	16.9%
Guadeloupe	20,000			4.3%
Martinique	40,000			10.0%
Netherlands Antilles	2,000			1.1%
St Kitts and Nevis	3,600	10,000		21.3%
St Lucia	13,000			8.2%
St Vincent	5,500	7,000		6.0%
Trinidad and Tobago	120,000	138,000		10.6%

(Source: Paul Budde Communication based on ITU and InternetWorld Stats.com data)

**Table 6 – Internet users in the Caribbean – May 2003**

Country	Internet Users	Penetration	ISPs
Anguilla	919	7%	16

Antigua and Barbuda	5,000	7%	16
Aruba	24,000	34%	n/a
Bahamas	16,900	6%	19
Barbados	6,000	2%	19
Cayman Islands	n/a	n/a	16
Cuba	120,000	1%	5
Dominica	2,000	3%	16
Dominican Republic	186,000	2%	24
Grenada	5,200	6%	14
Guadeloupe	4,000	1%	3
Haiti	30,000	> 1%	3
Jamaica	100,000	4%	21
Martinique	5,000	1%	2
Montserrat	n/a	n/a	17
Netherlands Antilles	2,000	1%	6
Puerto Rico	600,000	15%	76
St. Kitts and Nevis	2,000	5%	16
St. Lucia	3,000	2%	15
St Vincent and the Grenadines	3,500	3%	15
Trinidad and Tobago	120,000	10%	17
Turks and Caicos	n/a	n/a	14
Virgin Islands	12,000	10%	50
<b>TOTAL</b>	<b>1,247,519</b>	<b>3%</b>	<b>400</b>

(Source: CIA's World Factbook)

*Note: Internet users are those accessing the Internet from school, university or work, as well as from individual household or business accounts. Subscribers are individuals who pay for Internet access accounts.*

## 8. MOBILE COMMUNICATIONS

### 8.1 OVERVIEW OF MOBILE MARKETS

The Caribbean Region is one of the fastest growing mobile market in the world, with a CAGR of 42% from 1999-2003. A few Caribbean countries, such as Bermuda and the Cayman Islands, are extremely well off on a per capita basis, and attract operators for not only voice services, but also value-added data services. On the other hand, there are some severely under-penetrated countries such as Cuba and Haiti. The region is extremely heterogeneous, with vastly different cultural, economic, political, competitive, and regulatory backgrounds. Jamaica, whose relative poverty belies its 70%-plus mobile penetration rate, is just one example.

The mobile markets of the Caribbean are small, with the majority of subscribers using prepaid plans. Although geographically close, these mobile markets are at vastly different stages of development. Many of them, monopolies until now, are opening up to competition. Operators are moving into the region to offer services in places that previously had only one service provider. As competition enters the market, the mobile subscriber base is expected to expand even rapidly over the coming years.

There are four major players in the region: Cable & Wireless West Indies (C&WWI), Cingular Wireless, Oceanic Digital Communications and Digicel (see chapter 8.2). With operations in 13 island nations, C&WWI is by far the dominant provider.

As part of the liberalisation process in St Kitts & Nevis, CariGlobe Telecommunication was awarded a mobile licence in May 2002. Since the telecom sector was opened to competition in St Vincent & the Grenadines, Digicel and AT&T Wireless (now Cingular) launched GSM-900/1800 networks in 2003. In Barbados, the government issued new licences in August 2003 to C&W (Barbados), Cellular Communications (Barbados) SRL (AT&T), Digicel (Barbados) and Sunbeach Communications, and in September 2003 Digicel, Cellular One and AT&T Wireless won licences to operate in the Cayman Islands. Cellular One has operations in the Netherlands Antilles, including St Maarten and Bonaire, and in other Caribbean islands such as Dominica. Cingular, the newest entrant to St Lucia's liberalised telecom environment, launched its GSM-900/1900 network in mid-2003. Having won a cellular licence in Anguilla in March 2004, Cingular began building a GSM/GPRS/EDGE network which would be completed in the first half of 2005. In September 2004, the government of Trinidad and Tobago began the process of awarding two new mobile licences, which would introduce competition in mobile telephony.

GSM is by far the most popular mobile technology in the Caribbean. In mid-2002, C&W began to convert all of its TDMA networks to GSM/GPRS, and the upgrade was mostly completed by early 2004.

## Exhibit 2 – GSM networks

Country	Technology	Operators	Launch
Anguilla	GSM-850	C&W (West Indies) Ltd Anguilla	09/2003*
Antigua & Barbuda	GSM-850	C&W Caribbean	01/2004
	GSM-900/1900	AT&T Wireless (now Cingular)	10/2002*
	GSM-1900	Antigua Public Utilities Authority	01/2000
Aruba	GSM-900/1900	Setar	12/2001
	GSM-900/1800/1900	Digicel	07/2003
Bahamas	GSM-1900	Bahamas Telecom Co (BaTelCo)	02/2004
Barbados	GSM-1900	C&W Barbados	08/2003
	GSM-900/1800	Digicel	02/2004
	GSM-900/1800	AT&T Wireless (now Cingular)	10/2003*
	GSM-900/1900	Sunbeach Communications	Planned
Bermuda	GSM-1900	AT&T Wireless (now Cingular)	09/2003
	GSM-1900	Mobility Ltd	10/2002
Cayman Islands	GSM-850/1900	C&W (Cayman Islands)	09/2003
	GSM-850/1900	AT&T Wireless (now Cingular)	03/2004*
	GSM-900/1800	Digicel Cayman	02/2004*
Dominica	GSM-850	C&W Dominica	06/2003*
	GSM-900/1900	AT&T Wireless (now Cingular)	02/2004*
Grenada	GSM-850	C&W Grenada	01/2004
	GSM-900/1900	Grenada Wireless Holdings	02/2004*
	GSM-900/1900	Digicel Grenada	10/2003
Neth Antilles	GSM-900	Setel NV	02/2002
	GSM-1900	AT&T Wireless (now Cingular)	12/2003*
	GSM-900/1800	Curacao Telecom	03/2002
	GSM-900	Telcell	05/2003
St Kitts and Nevis	GSM-850/1900	C&W SKN	01/2003*
St Lucia	GSM-850	C&W Caribbean Cellular	12/2003
	GSM-900/1800/1900	Digicel St Lucia	10/2003

	GSM-900/1900	AT&T Wireless (now Cingular)	06/2003
St Vincent & Grenadines	GSM-850	C&W Caribbean	Planned
	GSM-900/1800	AT&T Wireless (now Cingular)	06/2003
	GSM-900/1800/1900	Digicel SVG	10/2003
Trinidad & Tobago	GSM-1800	Telecom Services of Trinidad (TSTT)	04/2003*

(Source: Paul Budde Communication based on industry data).

Note: \*Has not been confirmed that network is live.

### 8.1.1 Mobile statistics

The total subscriber base in the Caribbean small island nations was around 3.7 million in early 2004.

Statistical data for the Caribbean is somewhat distorted by various factors. Firstly, there are many subscribers who have several subscriptions. Secondly, the numerous tourists to these islands tend to buy a local SIM card which they never use again when they leave.

As a result, some Caribbean countries register penetration figures on a par or higher than developed markets, despite the fact that they are relatively less developed economically. Where the number of registered mobile subscribers exceeds 100%, this can normally be attributed to the above factors.

**Table 7 – Mobile subscribers in Caribbean small island nations – 2002**

Country	Subscribers	Penetration
Anguilla	2,000	17.0%
Antigua & Barbuda	38,200	49.0%
Aruba	53,000 (2001)	50.0%
Bahamas	121,800	39.0%
Barbados	140,000 (2003)	51.9%
Bermuda	30,000	46.2%
Dominica	9,400	12.0%
Grenada	7,600	7.1%
St Kitts & Nevis	5,000	10.6%
St Lucia	14,300	8.9%
St Vincent	10,000	8.5%
Trinidad and Tobago	361,900	27.8%

(Source: ITU, October 2003 and May 2004, and market data)

**Table 8 – Caribbean cellular/PCS subscribers – 1996 - 2006**

Year	Subscribers (millions)	Penetration
1996	0.5	1.3%
1997	0.7	1.8%
1998	1.0	2.7%
1999	1.6	4.2%

2000	2.7	7.3%
2001	4.0	10.7%
2002 (e)	5.3	13.8%
2003 (e)	6.3	16.3%
2004 (e)	7.1	18.3%
2005 (e)	7.8	19.8%
2006 (e)	8.3	20.9%

(Source: Yankee Group)

Note: These figures include all the Caribbean, not only the small island nations.

## 8.2 MAJOR MOBILE OPERATORS

### 8.2.1 Cable & Wireless West Indies

Cable & Wireless West Indies (C&WWI) has mobile operations in most of the Caribbean, including Anguilla, Antigua & Barbuda, Barbados, Bermuda, British Virgin Islands, Cayman Islands, Dominica, Jamaica, Grenada, Montserrat, St Kitts & Nevis, St Lucia, St Vincent & The Grenadines and Turks & Caicos Islands. The majority of its customers are based in Jamaica.

The company began to convert its TDMA network to GSM/GPRS across its entire Caribbean operations in April 2003. By late 2004, GSM services were available in 12 Caribbean islands. The upgrade has enabled the launch of new products and services, including BlackBerry, prepaid pan-Caribbean roaming and MMS.

This new infrastructure has allowed C&WWI to significantly increase voice capacity and improve international roaming. It also supports advanced wireless data services, including Web browsing, e-mail access, and personal messaging, as well as other features like local number portability. The new infrastructure enables the company to offer wireless IP Virtual Private Networking (VPN) services.

February 2003 saw the C&W dominance a little further eroded, as the company was ordered to allow interconnection on its fixed-line networks in St Lucia, St Vincent and Grenada. Previously, C&W had been the only mobile operator able to carry calls to fixed-line phones.

### 8.2.2 Digicel

Digicel is owned by Mossel Ltd, an Irish company. It first moved into the Caribbean market in 2001 when it paid US\$45 million for a licence to set up service in Jamaica where its network went live in April 2001. Since its launch, Digicel has surpassed the region's incumbent C&W, and now dominates the West Indies marketplace. It has invested close to US\$600 million in launching mobile networks across the Caribbean. In August 2004, it launched a prepaid roaming service across all of its Caribbean network.

The company acquired licences to establish mobile networks in St Lucia, St Vincent and the Grenadines (both GSM-900/1800 networks launched in March 2003), Aruba

(launched July 2003 in partnership with local company New Millennium Telecom Services), Cayman Islands, Dominica, Barbados and Grenada. Its goal is to become the largest mobile operator in the English-speaking islands of the Caribbean.

In November 2004, Digicel submitted an application for a licence to build and operate a submarine fibre optic cable carrier facility in Jamaica.

### 8.2.3 AT&T Wireless (now Cingular)

Cingular Wireless provides service in Antigua, Barbuda, Barbados, Bermuda, Cayman Islands, Dominica, Grenada, St. Lucia, St Vincent and the Grenadines, Puerto Rico and the US Virgin Islands, and it has acquired licences to offer services in Curacao, Jamaica, St Barth's, St Martin, Guadeloupe and Martinique.

In February 2004, Cingular Wireless, a joint venture between SBC Communications and BellSouth, announced an agreement to acquire AT&T Wireless. The deal, which made Cingular the leading mobile carrier in the USA, was finalised in October 2004.

AT&T entered the Bermuda market in July 2002 through the acquisition of 60% of the shares of Telecom Bermuda's GSM business, which launched in December 2000. By March 2004, the company had acquired its 17<sup>th</sup> licence in the Caribbean after gaining concessions to provide a wireless service in Jamaica and Anguilla.

In October 2004, Cingular Wireless introduced a version of NTT DoCoMo's i-Mode service in the Caribbean under the brand name mMode, initially in Barbados, Antigua and Bermuda. The technology was designed specifically for the Caribbean market and enhanced to include information that is relevant to people living in the region.

For more information, see separate report: [AT&T Wireless Services \(Archived\)](#) and [USA - Company - Cingular Wireless](#).

### 8.2.4 Oceanic Digital Communications

Oceanic Digital Communications provides integrated communications services to underserved markets in the Caribbean and Latin American region. The company's wireless network also offers high-speed Internet access, with service being provided primarily on a prepaid basis. In addition to Jamaica, Oceanic Digital has wireless operations in the Dominican Republic, El Salvador, the Netherlands Antilles Islands of St Maarten, St Eustatius, Saba and Bonaire, the French West Indies of St Martin and St Barts and in Dominica where cable, ISP and fixed-line services are also provided.

Oceanic Digital Jamaica purchased its wireless telephony from the Jamaican Government in 2000 and Centennial Digital Jamaica launched its 3G CDMA network in October that year. Originally a joint venture between Centennial Communications (51%) and Oceanic Digital (49%), Centennial sold its entire stake in the company in July 2002. In March 2003, Oceanic Digital Jamaica received the right to process international long-distance telephone traffic in March 2003.

Oceanic owns 60% of Marpin/Paradise Wireless Limited, a Dominica corporation joint venture with Marpin Telecoms and Broadcasting Co Ltd, which was formed to develop the PCS licence in Dominica.

### 8.3 SATELLITE MOBILE

Globalstar USA and Globalstar Caribbean, provide satellite-based mobile communications in the United States and Caribbean. A satellite ground station in Las Palmas Puerto Rico improves access to satellite communications services across the Caribbean region. Calls can be made throughout the region without incurring international roaming charges.

Improvements in Globalstar's Caribbean service were scheduled to begin in April 2004 following the installation of a new, fourth antenna at its gateway in Puerto Rico. Later in 2004, construction work is expected to begin on an entirely new gateway in southern Florida, providing additional coverage and service capacity.

Globalstar has undertaken a two-phase plan to improve and augment its Caribbean service coverage. The first phase of the plan was completed in June 2004, with the installation of a fourth antenna at its regional gateway at Las Palmas, Puerto Rico. This antenna gives the gateway greater capability in maintaining uninterrupted, high-quality radio links with the Globalstar satellites. The second phase of the plan, scheduled for completion in 2005, involves the construction of a new gateway in Florida.

For more information, see separate report: [Globalstar \(Archived\)](#).

## 9. RELATED REPORTS

For information relating to:

- Telecommunications in other Latin American markets, see: [Latin America](#);
- Worldwide activities in the telecommunications industry, see: [Global Overviews](#);
- Technical information relating to the telecommunications industry, see: [Technologies, Terminology and Glossary](#).

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