

CS25010

Wide Area Services provided mainly for Data - Part One

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Computer Science

Publicly Available Services

- **Leased Lines**
 - hired 24 hours/day - analogue and digital
- **GNS (was PSS)**
 - packet switched data network
- **High Speed Short Haul Services**
- **Satellite Services**
- **ISDN - Integrated Digital Services Network**
 - fully digitally dial-up network

General Advantages over the PSTN

- **Designed to carry a larger range of frequencies**
- **Lines can be tuned for better signal to noise ratios**
- **might use more than one pair of wires**
- **different tariff principles**

Leased Lines

- **major feature is that they are leased, 24 hours/day, everyday - fixed annual charge not based on usage**
- **Analogue and Digital Services are available**
- **Single exchange area and long distance services are available**

Analogue Leased Lines from BT

- **KeyLine Standard (EPS 21) 2 wire**
- **KeyLine Premier (EPS 25B) 4 wire**
- **KeyLine Baseband Standard (EPS 9) 2 wire**
- **KeyLine Baseband Premier (EPS 8) 4 wire**

KeyLine Standard and Premier - long distance services Installation Costs

Connection Charges	Standard	Premier
Each Local Link	510	611
Plus Main Link		
Both ends Central London	623	623
otherwise		
Up to 15Km	623	623
Over 15Km	775	775

Rental Charges

Rental Charges	Standard	Premier
Each Local Link	213	334
Plus Main Link		
Both ends Central London	196	296
Under 5Km		
per Km	116	161
Over 5Km but under 15Km		
for 1st 5Km	582	805
per extra Km	102	131
Over 15Km		
for the 1st 15Km	1603	2121
per Km upto 180Km	18	18
for the 1st 180Km	4520	5037
per extra Km	14	13

Example PSTN Costs for Comparison

- **Local daytime Calls**
- **4p / minute**
- **National daytime Calls**
- **8p / minute**
- **Phone Line Installation**
- **116 pounds**

Example Costs

- **Aberystwyth <-> Aberystwyth**
- **Installation**
 - **1020 or 1222**
- **Rental**
 - **426 or 668 pounds**
- **equiv 177 or 278 hours of PSTN usage**

Example Costs

- **Aberystwyth <-> Borth**
- **Installation**
 - **1643 or 1845**
- **Rental**
 - **1518 or 2128**
- **equiv 632 or 886 hours of PSTN usage**

Example Costs

- **Aberystwyth <-> Birmingham**
- **Installation**
 - **1795 or 1997**
- **Rental**
 - **4520 or 5037**
- **equiv 941 or 1049 hours PSTN usage**

KeyLine Baseband Standard and Premier - LOCAL only services

With the correct equipment, can be used up to 128 or 256Kbps

Connection Charges	Standard	Premier
Each Local Link	611	611

Rental Charges	Standard	Premier
Each Local Link	213	334

Digital Leased Lines from BT

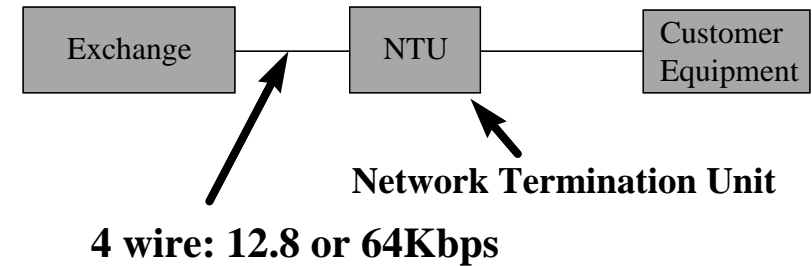
- **KiloStream**

- low speed (2.4, 4.8 & 9.6 Kbps)
- high speed (19.2, 48 & 64 Kbps)
- N (128Kbps -> 1024Kbps)

- **MegaStream**

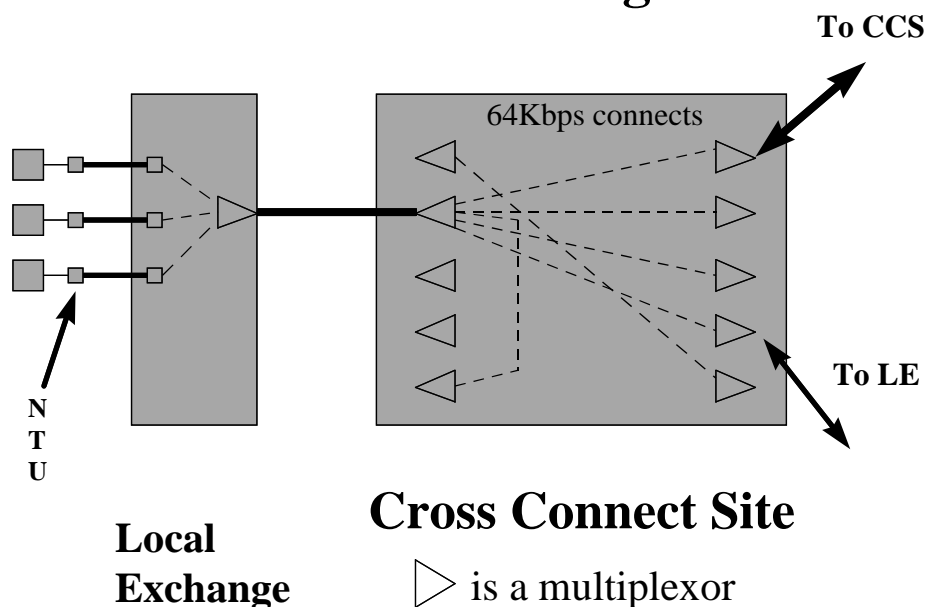
- 2Mbps, 8Mbps, 34Mbps, 140Mbps

KiloStream



Full duplex Point to Point service

Circuit Routing



Cross Connect Site

- **Computer Controlled Switch**
- **Network Control Centres**
 - London
 - Manchester
- **Up to 48Kbps, NTU adds 2 bits per 6 data bits to provide control and monitoring**

KiloStream Installation Costs

Connection Charge	Low	High
	Speed	Speed
Each Local Link	447	447
Plus Main Link		
distant independent	165	164

Rental Charges

Rental Charges	Low	High
	Speed	Speed
Each Local Link	940	1104
Plus Main Link		
Both ends Central London	132	132
under 15Km		
per Km	132	132
Over 15Km		
for the 1st 15Km	1974	1974
per extra Km	8	8

Example Costs - KiloStream

- **Aberystwyth <-> Birmingham**
- **Installation**
- **1058 for either speed**
- **Rental**
- **5134 or 5462**
- **equiv 1070 or 1137 hours PSTN usage**
- **BUT we now have a 64Kbps service**