

# Internet for businesses Service Description

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## 1 Introduction

GlobalConnect Internet is a business internet access service that can be delivered with capacities from 1 Mbps up to 10 Gbps.

Internet from GlobalConnect is available as both fixed access and wireless access. The solutions are adapted to the company's needs in terms of capacity and traffic patterns and contribute to cost-optimized solutions. The different forms of access can be delivered in variants both with and without managed routers or WiFi routers. Which variant of the different forms of access best suits your business is determined by your needs.

Internet Managed offers managed and monitored internet access with customer-placed configured routers.

Internet WiFiConnect provides your business with a managed wireless network with its own guest network and a simple firewall.

Internet Access Fiber and Internet Access Fiber Basis provide an excellent service that your business can build on in the future.

### 1.1 Overview of the various Internet services from GlobalConnect

Access form	Fixed access		Wireless access
Variant/service	Internet Fiber	Internet Fiber Basic	Wireless broadband
Internet access	Yes	Yes	Yes
Internet Managed	Yes	No	No
Internet WifiConnect	Yes	Yes	Yes

Table 1: Overview of access services and variants

### 1.2 Add-on services

GlobalConnect can also offer add-on services such as:

- Extended Service Agreement
- IP addresses
- Internal cabling
- Express delivery
- Redundancy/Diversity
- Web hosting, domain management, email
- SafeSurf
- Secure internet (URL Filtering and Application Prioritization)
- DDoS protection
- Come Online guarantee

Add-on services such as web hosting, domain management, email, Come Online guarantee, and DDoS protection are described in a separate Service Description.

## 2 Fixed access services

GlobalConnect Internet consists of a logical Internet connection with a specified capacity delivered on an electrical or optical interface. The need for a given capacity depends largely on usage patterns, for example:

- Surfing the web
- Sending and receiving emails
- Connecting home offices and mobile users
- File transfer between the company and partners and to external storage, e.g. cloud storage
- Cloud-based services and applications (Microsoft Office 365, SAP, Google, Salesforce etc.)
- Distributed applications
- Multimedia solutions such as audio, video, conferencing, file sharing, and application sharing
- Streaming services over the internet
- Performance requirements for displaying company web pages

### 2.1 Internet access services

Internet access from GlobalConnect is delivered with an electrical or optical interface to the company and offers several possibilities for combination with the company's both existing and newly purchased ICT equipment. The service provides a very good basis for taking advantage of the benefits that modern communication technology and services offer the company.

The services are produced, depending on location/coverage, on Fiber or wireless access.

Internet Fiber is offered with symmetrical speeds of up to 10 Gbps, and asymmetrical speeds of up to 60/20 Mbps. Internet Fiber Basic is limited to symmetrical speeds of up to 1 Gbps.

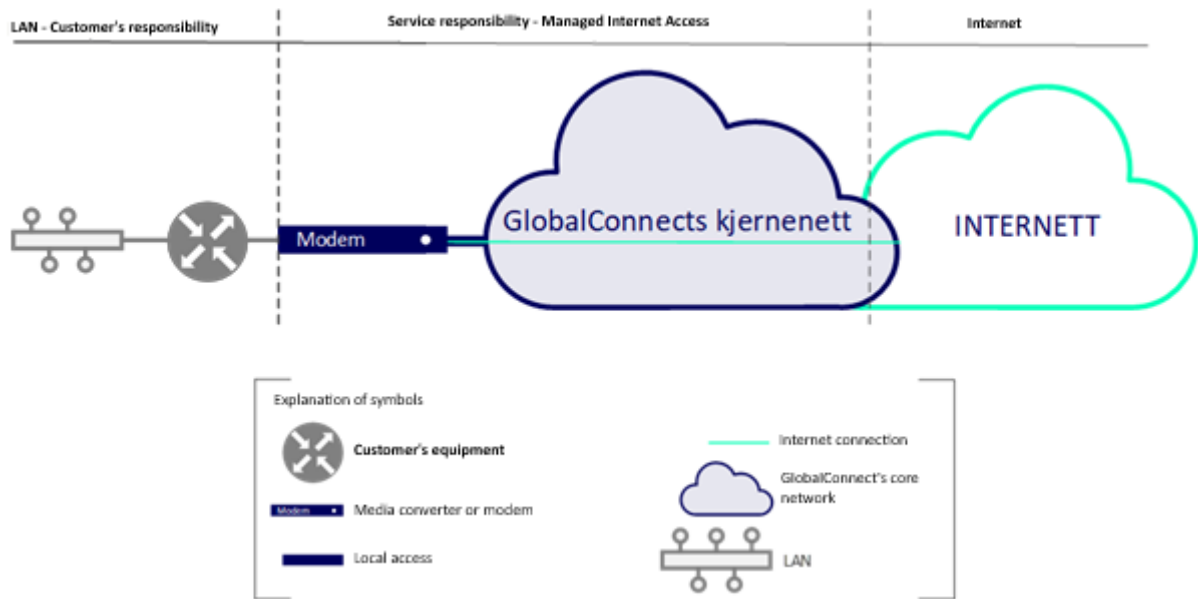
#### 2.1.1 IP address assignment for Internet access services

Internet Fiber can be delivered with either one dynamic IPv4 address or one or more fixed IPv4 and IPv6 addresses.

Internet Fiber Basis is delivered with 1 public reserved IPv4 address that is assigned via DHCP. The IP address will be the same from the first time the customer connects their equipment. The IP address will not change unless there are changes in the network, or if the customer changes the installation address for the connection. The customer will be notified of changes in advance. The product cannot use other IP add-on services.

### 2.1.2 Service responsibility

GlobalConnect's service responsibility for the access service is from the electrical interface on the media converter or modem delivered with the service to GlobalConnect's interface to the internet.



*Illustration 2.1.2: Internet access services and service responsibilities*

### 2.1.3 Limitation of service liability

Excluded from the service responsibility defined above is the responsibility for the internal cabling in the building/building stock and into the customer's premises. Costs for this are not included in the service. This service can be ordered as internal cabling from GlobalConnect. The customer is also responsible for the LAN, distribution network in the office premises, and internal cabling between the media converter and router. GlobalConnect is not responsible for network elements in the Customer's network or internal cabling at the Customer site.

## 2.2 Internet Managed

Internet Managed is a managed end-to-end service where GlobalConnect delivers and operates customer-located routers. The service is provided depending on location/coverage on Fiber or wireless access.

Internet Managed is offered with symmetrical speeds of up to 10 Gbps.

Internet Wireless business comes with speeds of up to 100 Mbps

### 2.2.1 IP address assignment for the Internet Managed service

Internet Fiber can be delivered with one or more fixed IPv4 and IPv6 addresses.

It is possible to order DHCP/NAT as an add-on service.

### 2.2.2 SNMP read

SNMP read (version 2) can be ordered as an add-on service to Internet Managed. SNMP read is a UDP-based protocol mainly used for IP network monitoring. SNMP read version 2 has security weaknesses. GlobalConnect is not responsible for security breaches, should situations arise where the weaknesses of SNMP are misused.

### 2.2.3 Active Notification

Active Notification can be ordered as an add-on service to Internet Managed. Active Notification is a service that reports to the customer on whether a location is available or not by means of an alarm on a limited number of events PING\_Noreply / Unreachable / Timeout. All alarms for a location for this product will be handled within an error message.

#### 2.2.3.1 Process description for Active notification

If a location loses contact with the network, an alarm is generated in GlobalConnect's operation and monitoring system. The system checks the customer's name against the database for Active Notification customers, and if the customer has the product registered, a message is sent to GlobalConnect's fault reporting system with information about the incident. An error message is automatically created with reference to the connection number that has been notified, and the customer is automatically notified by email or SMS. The notification method is agreed in each individual case between Customer and GlobalConnect.

When the system detects that the location is online again, a new message is generated so that the SLA clock is stopped. The error message is linked to the connection number, so that you have access to relevant information about the customer and the incident. If the downtime is related to a flap, the case is closed automatically.

If a collective error occurs, the error messages are collected, and no automatic notification is sent out. With Active Notification, GlobalConnect will often be able to notify the customer of errors before the customer has had time to discover the error and report it to GlobalConnect. This will reduce the customer's troubleshooting work and the duration of outages at locations, as well as increase the customer's knowledge of ongoing events in the network that may affect managed services. In addition, faults such as short outages at a location that the customer does not have time to report will also be registered. The customer will still be able to report faults to customer service even if the Active Notification service is selected, but it will no longer be necessary to report a breach at a location.

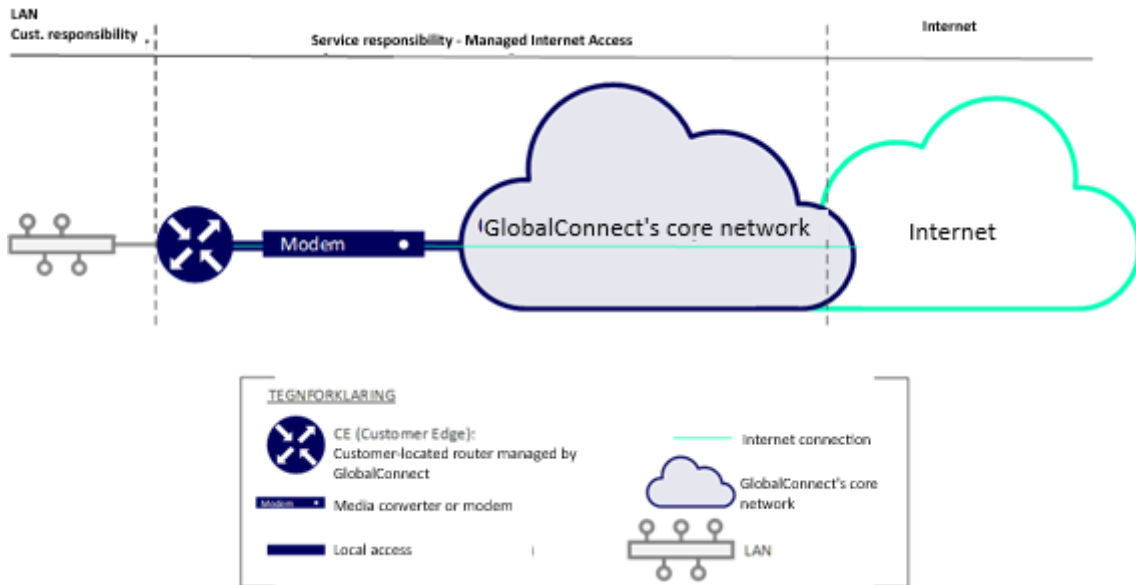
#### 2.2.3.2 Active notification and SLA compensation

When calculating any SLA compensation (cf. the Quality of Service document ptk. 3 - Quality of Service parameters), it is assumed that the Customer has responded to

Customer Service on Trouble Tickets (TT) that have resulted in GlobalConnect being able to initiate troubleshooting.

### 2.2.4 Service responsibility

Service responsibility for the Internet Managed service is from the LAN interface on the Customer's router to GlobalConnect's interface to the internet.



*Illustration 2.2.2: Managed internet access service and service responsibility*

#### 2.2.4.1 LIMITATION OF SERVICE LIABILITY

Excluded from the service responsibility defined above is the responsibility for the internal cabling in the building/building stock and up to the customer's premises. Costs for this are not included in the service. This service can be ordered as Internal cabling from GlobalConnect. The customer is also responsible for the LAN, distribution network in the office premises, and internal cabling between media converters and routers. GlobalConnect is not responsible for network elements in the Customer's network or internal cabling at the Customer.

### 2.2.5 Redundancy & Diversity

For solutions with high uptime requirements or that use the service for business-critical applications, redundancy is a good option.

GlobalConnect offers several solutions to ensure that your company's Internet connection is always up: logical redundancy with full or partial diversity.

GlobalConnect provides two Internet connections, each of which is connected to its own router. In the event of a break in the main connection, the traffic is automatically transferred to the secondary connection - and back again when the main connection is up again.

Transition from primary to secondary router with associated access takes place automatically using VRRP or BGP routing protocol.

The solution can be delivered up to 10 Gbps on the main connection and secondary connection.

### 2.2.5.1 Redundancy with full diversity

Full diversity is an add-on service that assures the customer that two different accesses are delivered with physical separation from equipment, cables, and trenches between location A and location B. This applies to both customer location and node location in the provider's network. The service is only available for Managed Internet.

- Diversity is provided so that two access lines do not have common guides, equipment, nor node space.
- Diversity is always between two accesses.
- Feeds of a Diversity Link cannot be in the same trench, pipe, manhole, or junction box, and there must be a distance of at least 5 meters between the access lines.
- Feeds can physically pass each other, but must then have a minimum of 5 meters separation. For example: Ground and air

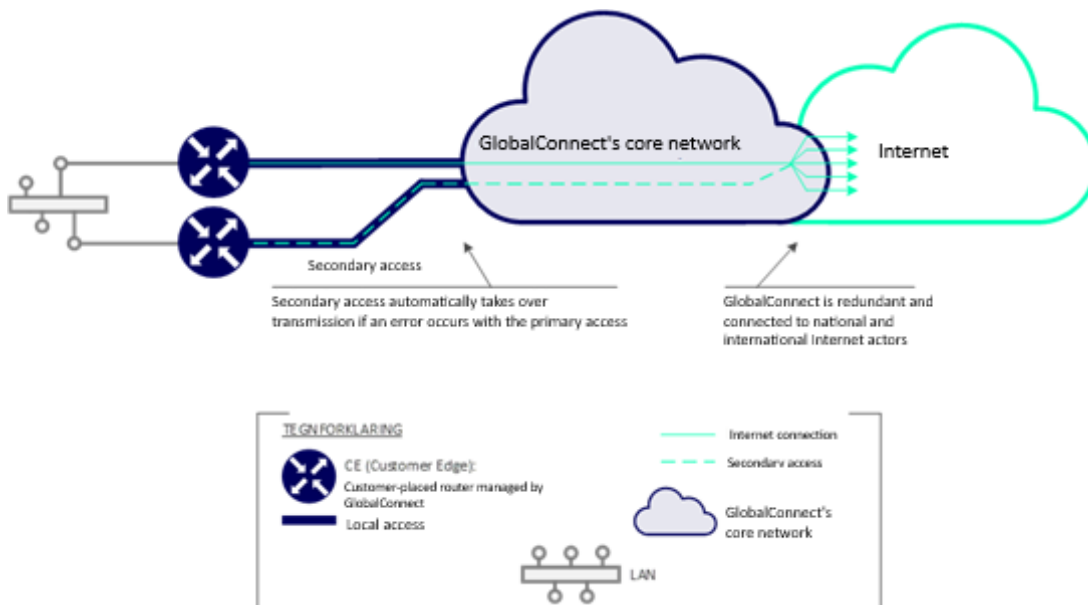


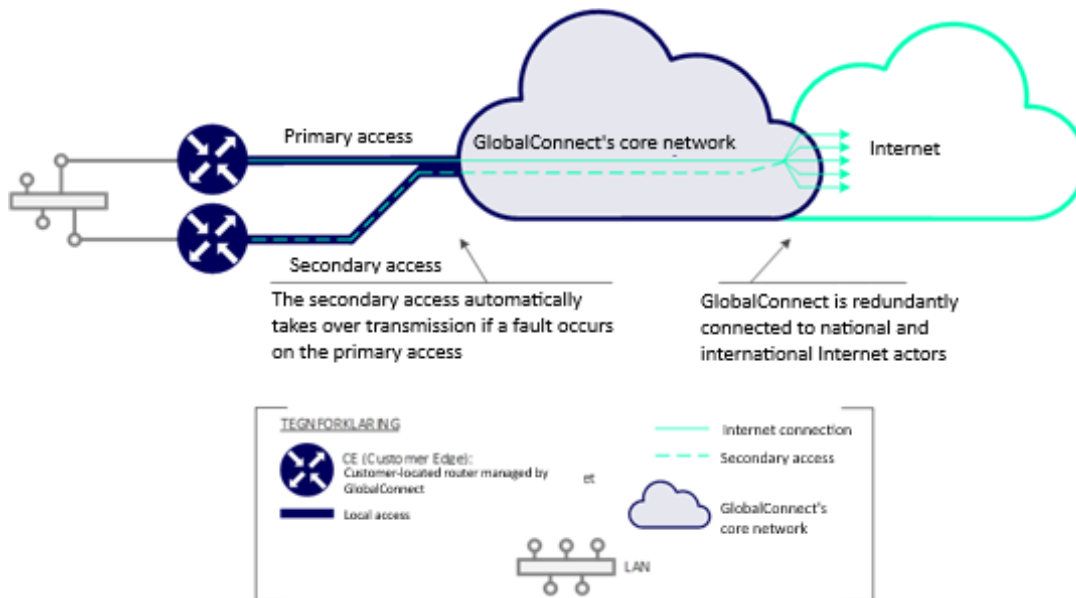
Illustration 2.2.3.1: Managed internet access redundancy and full diversity.

### 2.2.5.2 Redundancy with partial diversity

Partial diversity is an add-on service used when full diversity is not available to give a connection increased security and service availability. Corresponding to Full Diversity, two access lines are provided, with separation where possible.

- Partial Diversity is provided so that two access lines have limited common guides and equipment.
- Partial Diversity is always between two accesses and delivered to two different nodes.
- Feeds of a Partial Diversity band can have common or unknown feed on parts of the distance.

Feeds can physically pass each other.



*Illustration 2.2.3.2: Managed internet access with redundancy and partial diversity*

## 2.3 WiFiConnect for fixed access services

WiFiConnect is designed for businesses that need stable internet access, a simple firewall, and a wireless network (WiFi) and can manage with just one WiFi access point.

This chapter describes WiFiConnect delivered on Internet Fiber and Internet Fiber Basis. The service can also be delivered with Wireless Broadband, please see chapter 3.2.

### 2.3.1 Service responsibility

Service responsibility for the WiFiConnect service for fixed access is from the LAN interface on the customer's WiFi router to GlobalConnect's interface to the internet.

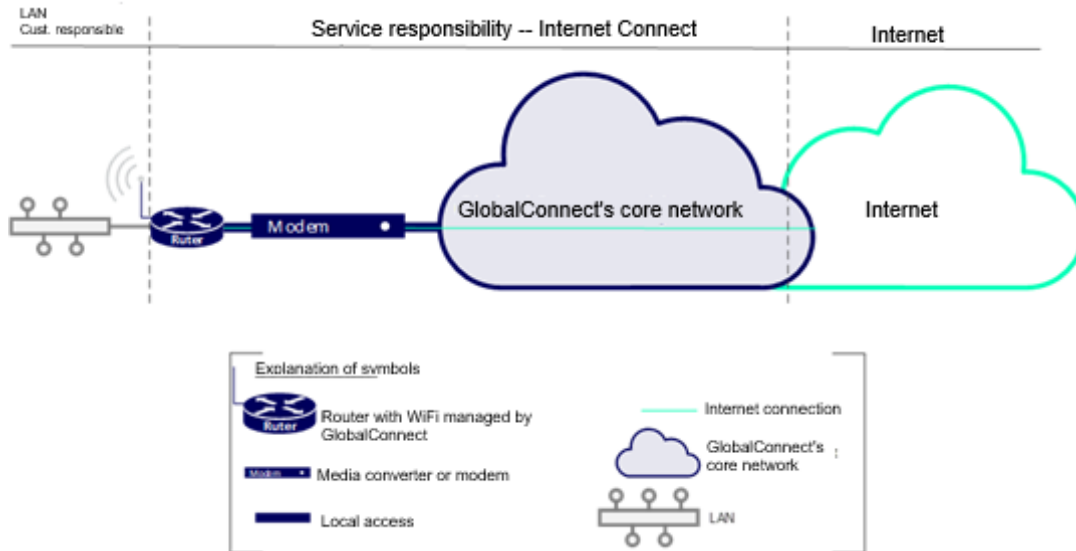


Illustration 2.3.1: Interface for service responsibility for WiFiConnect for the fixed access service

### 2.3.2 Limitation of service liability

Excluded from the service responsibility defined above is the responsibility for the internal cabling in the building/building stock and into the customer's premises. Costs for this are not included in the service. This service can be ordered as Internal cabling from GlobalConnect. The customer is also responsible for the LAN, distribution network in the office premises and internal cabling between media converters and routers. GlobalConnect is not responsible for network elements in the Customer's network or internal cabling at the Customer.

### 2.3.3 WiFiConnect with Internet Fiber and Internet Fiber Basis

WiFiConnect can be ordered as an add-on service to Internet Fiber and Internet Fiber Basis. GlobalConnect will then install routers for WiFiConnect together with equipment for Internet access. The WiFiConnect service provides:

- Speeds from 10 Mbps up to 1 Gbps
- Router with
  - Integrated WiFi - 802.11ac, 5 GHz with 4 antennas and 802.11n, 2.4 GHz with 2 antennas
  - 4 x 1 Gbps LAN ports
  - Firewall



Figure 2.3.3: The router supplied with the service WiFiConnect for Internet Fiber and Internet Fiber Basis.

### 2.3.3.1 IP ADDRESSES

For Internet Fiber, the service is delivered with 1 dynamically assigned IPv4 address. For Internet Fiber basic, the service is delivered with 1 public reserved IPv4 address that is assigned via DHCP.

DHCP/NAT is used on the LAN side. The dynamically assigned address belongs to the official IPv4 address space. Statically configured IP is not available for this product. If statically allocated IP addresses are required, the products Internet Fiber and Internet Managed must be used.

### 2.3.3.2 INSTALLATION FOR WIFICONNECT WITH INTERNET FIBER AND INTERNET FIBER BASIS

The service requires the following equipment units from GlobalConnect to be installed at the customer's address:

- NTP (Network termination point)
- Media converter/ONP
- Router

The router is connected to GlobalConnect's media converter (included in the service) in the customer's premises at the installation address. Internal cabling between GlobalConnect's NTP and the customer's premises at the installation address is required. This is not included if the customer does not have this, but can be ordered as an add-on service. Read more about this service in chapter: 2.7.1.

For more information about WiFiConnect for Internet Fiber and Internet Fiber Basis, see Appendix A.

## 2.4 Physical interface for internet fixed access

### 2.4.1 Network termination point

Network Termination Point (NTP) for fiber is the physical handover point determined by GlobalConnect normally located outside or immediately after the penetration in the wall at the delivery address. The service includes a maximum of 15 meters of cabling up to the NTP. If NTP has previously been installed at the address, this will be used.

Costs associated with cabling between NPT and the Customer's own equipment are not included in the service. This service can be ordered as Internal cabling from GlobalConnect.

### 2.4.2 Internet Fiber

For speeds up to 1 Gbps, Internet Fiber comes by default with a media converter that converts from optical to electrical interface to the customer's local area network (LAN). The media converter has an RJ45 connection for customer equipment and supports 10/100/1000 Mbps (auto-negotiation) speeds to the LAN. With this, the customer does not have to secure the right optical interface. For speeds above 1 Gbps, fiber access is delivered with an optical interface. GlobalConnect normally uses a 1 Gbps interface on backbone connections for delivery of speeds up to and including 1 Gbps and a 10 Gbps interface on backbone connections for speeds from 2 Gbps up to and including 10 Gbps.

### 2.4.3 Internet Fiber Basis

Internet Fiber Basis comes by default with a media converter that converts from optical to electrical interface to the customer's local area network (LAN). The media converter has an RJ45 connection for customer equipment and has 1000base TX with auto-negotiation. This means that the customer does not have to secure the correct optical interface. Internet Fiber Basis can only be delivered with speeds up to and including 1 Gbps.

## 2.5 Add-on services for fixed access

In addition to the Internet access, GlobalConnect provides other relevant services that satisfy most communication needs for the company. Service availability for the various add-on services depends on the type of access and is specified in table 2.8.

### 2.5.1 Internal cabling for fiber deliveries

GlobalConnect ensures that the entire process of fiber delivery is taken care of. When installing fiber, we take responsibility for the fiber cable up to GlobalConnect's termination point in the customer's building. This is included in the price when you order fiber from GlobalConnect in GlobalConnect's infrastructure. However, the cost of internal cabling from GlobalConnect's termination point in the building to the customer's premises must be covered by the customer, who is also responsible for the managed fiber cable between these points.

The actual installation of the internal cabling can be ordered from GlobalConnect. We ensure that the delivery is as predictable as possible and that your company does not have to spend time and resources on the fiber installation.

We offer the following solutions for internal cabling:

2.5.1.1 Internal cabling for fiber deliveries in GlobalConnect's own infrastructure:

Internal cabling Fixed Price (1/2/3/5)	Internal cabling Fixed price Shopping center (2/3)	Internal cabling by cost and material (2b)	Internal cabling under the customer's own management (4/6)
<p>Can be used for ordinary commercial buildings where there is unlimited access to carry out internal cabling without escort service within ordinary working hours.</p> <p>Includes costs for internal cabling up to 20 000,- or up to 200 meters.</p>	<p>Can be used in shopping centers or other addresses where access to perform internal cabling is not unlimited, e.g.; if the work must be performed outside of normal working hours, or must be performed together with an escort service.</p> <p>Includes costs for internal cabling up to 20 000,- or up to 200 meters.</p>	<p>Internal cabling is provided by GlobalConnect on the basis of time spent, costs and materials consumed, which are invoiced to the customer.</p>	<p>The customer is responsible for providing internal cabling or the customer has existing internal cabling that can be used for this purpose.</p> <p><u>Requirements for internal cabling:</u> The internal cabling must be ready for the installation date and be made with single-mode fiber pairs, terminated on SC/PC connector. The cable must have correct attenuation, be free of damage and otherwise be fit for purpose.</p>

The various solutions distinguish between ordinary commercial buildings and shopping centers. If the building to be wired does not offer unlimited access to perform internal cabling, requires the work to be carried out outside of normal working hours, or requires an escort service, then the product line for Internal cabling Fixed price Shopping center must be selected.

- (1) Can only be used for ordinary business buildings with unlimited access to perform internal cabling. Separate prices apply for Internal Cabling Fixed Price Shopping Center. If the Internal Cabling Fixed Price product is selected for a specific address and the address later turns out to be a shopping center, or does not offer unlimited access to perform internal cabling, GlobalConnect reserves the right to change the product line to Internal Cabling Fixed Price Shopping Center with associated prices.
- (2) a) Internal cabling Fixed price Includes internal cabling up to NOK 20,000 or up to 200 meters. Internal cabling beyond this will be invoiced at b) NOK. 100,- per meter. Minimum invoice NOK. 4,000 (Applies in GlobalConnect's infrastructure, other prices may apply when using other infrastructure). It is assumed that the internal cabling is carried out together with the delivery of fiber services from GlobalConnect.
- (3) Although GlobalConnect provides the internal cabling, the customer is responsible for the managed and maintenance of the fiber cable between GlobalConnect's termination point in the building and up to the customer's premises.
- (4) If the requirements for internal cabling are not met or if the internal cabling is not in place on the installation date, GlobalConnect reserves the right to invoice either Internal Cabling Fixed Price; minimum price for 12 month agreement, Kr. 7995,- or Internal Cabling Fixed Price Shopping Center; minimum price for 12 month agreement, Kr. 14995,-. Which one will be used if the requirements for internal cabling are not met depends on what is correct for the location in question.
- (5) For internal cabling in the data center, the customer must order internal cabling from the customer's equipment to the correct exchange port in the Meet Me Room directly from the data center provider.

- (6) If the distribution network is owned/delivered and/or managed by a third party, it is the Customer's responsibility to enter into the necessary agreements and cover costs from the third party in order to ensure GlobalConnect's delivery of the service. This also applies if the distribution network covers an area with several buildings.

**Table 2.5.1.1 Internal cabling for fiber deliveries in GlobalConnect's own infrastructure**

**2.5.1.2 Internal cabling for fiber deliveries in alternative fiber infrastructure from third parties**

For fiber deliveries where GlobalConnect does not use its own infrastructure, but fiber infrastructure from a third party, GlobalConnect cannot offer the above internal cabling solutions. For such deliveries, internal cabling must be performed at cost and material. The prices for this must be investigated in connection with the price request. In cases where it is not possible to obtain a price for this in advance, the customer will be invoiced according to costs and materials incurred.

Internal cabling by cost and material (1)	Internal cabling under the customer's own management (2/3)
<p>Internal cabling is provided by GlobalConnect's third-party partner according to time, cost and material consumed, which is invoiced to the customer. In some cases, it will be possible to get a price for this in advance.</p>	<p>The customer is responsible for providing internal cabling or the customer has existing internal cabling that can be used for this purpose.</p> <p><u>Requirements for internal cabling:</u> The internal cabling must be ready for the installation date and be made with single-mode fiber pairs, terminated on SC/PC connector. The cable must have correct attenuation, be free of damage and otherwise be fit for purpose.</p>

- (1) Subcontractors' prices are used. It is assumed that the internal cabling is carried out together with the delivery of fiber services from GlobalConnect.
- (2) If the requirements for internal cabling are not met or if the internal cabling is not in place on the installation date, GlobalConnect reserves the right to carry out and invoice the customer for internal cabling according to time and material.
- (3) If the network is owned/delivered and/or managed by a third party, it is the Customer's responsibility to enter into the necessary agreements and cover costs from the third party in order to ensure GlobalConnect's delivery of the managed service. This also applies if the distribution network covers an area with several buildings.

**Table 2.5.1.2 Internal cabling by cost and material, alternative fiber infrastructure**

### 2.5.2 Express delivery for Internet Fiber

Express delivery for Fiber Services is a service that makes it possible to order faster delivery than normal for specified internet Fiber Services from GlobalConnect.

Express Fiber 10 business days for Internet Fiber is available to order as an additional service throughout Norway on GlobalConnect's own fiber infrastructure (Onnet B).

The delivery time of 10 working days is calculated from the first working day after the Notice of Receipt is sent to the customer from GlobalConnect.

The service cannot be delivered on diversity.

#### 2.5.2.1 Acceptance of an express order

Orders for the express service must be accepted by GlobalConnect. Acceptance is given when GlobalConnect sends out an Order Confirmation containing the ordered item line for express delivery. If express delivery is not possible, the item line for express will be removed from the order when the Order Confirmation is sent with the message that Express delivery is not possible.

#### 2.5.2.2 Cancellation of orders where express delivery is not possible

If the Customer receives an Order Confirmation stating that Express Delivery is not possible, the Customer may cancel the individual order to which the Express Delivery applies for a fee (Cancellation of orders where Express Delivery is not possible). Such cancellation must be received by GlobalConnect no later than four working days after the Customer has received an Order Confirmation from GlobalConnect stating that express delivery is not possible.

#### 2.5.2.3 Price list

Prices for the various express products are stated in the price list or in offers from GlobalConnect.

#### 2.5.2.4 Late delivery

If GlobalConnect does not succeed in delivering within the specified delivery time, the requirement for payment for the services lapses.

The Customer is responsible for submitting and documenting claims for refunds of Express Fees.

### 2.5.3 Fixed IP addresses

GlobalConnect can allocate more fixed IP addresses for an additional fee (see table 2.8 for service availability for the relevant access technology). Due to the lack of IP version 4 addresses, a well-founded application is required from the Customer and the application must be approved in accordance with the guidelines from RIPE before an IP address can be allocated to the Customer.

The product	Net bits	Subnet mask	Accessible IP addresses for the customer	Note
128 fixed IP addresses	/25	255.255.255.128	125	Requires the application to be RIPE approved
64 fixed IP addresses	/26	255.255.255.192	61	Requires the application to be RIPE approved
32 fixed IP addresses	/27	255.255.255.224	29	Requires the application to be RIPE approved
16 fixed IP addresses	/28	255.255.255.240	13	
8 fixed IP addresses	/29	255.255.255.248	5	
4 fixed IP addresses	/30	255.255.255.252	1	

**Table 2.5.3 Fixed IP addresses**

IP addresses available to the Customer:

For each IP address block (/xx), 3 IP addresses are reserved for specific purpose such as:

1. Net address
2. Default Gateway address
3. Broadcast address

Example:

When ordering the product 8 fixed IP addresses (/29 network), 5 fixed IP addresses will be "delivered" on the local network interface and be available to the Customer.

When ordering fixed IP addresses, information about the IP addresses and how to configure them will be sent out. This typically happens a few weeks before the actual access is delivered and activated. This gives the customer plenty of time to plan IP addresses and configure hosts where necessary.

If the company wants more than 13 fixed IP addresses, an application must be sent to GlobalConnect. The form can be obtained via your sales contact in GlobalConnect.

#### 2.5.4 DHCP/NAT

DHCP/NAT can be delivered as an add-on service to the Internet Managed service. It will not be possible to order additional IP addresses in combination with the DHCP/NAT service.

#### 2.5.5 DHCP NAT for Internet Managed

DHCP/NAT for Internet Managed is available up to and including 1 Gbps. The customer can use one of IANA RFC 1918 for NAT; 10.0.0.0/8, 172.16.0.0/12, 192.168.0.0/16.

## 2.6 Specification of fixed access services with service availability for add-on services

The table below sets out further specifications for the fixed access service as well as service availability for the various add-on services described above

Specification	Fixed access			
	Fiber			
	Internet Fiber	Internet Fiber Basis	Internet Managed	Internet WiFi-Connect
Coverage	Norway	Norway	Norway	Norway
Technology	Fiber	Fiber	Fiber	Fiber
Customer equipment	Media converter	Media converter	Router	Media converter and WiFi router
Management of router	no	no	Yes	WiFi only
Fast IP	Yes	no	Yes	no
DHCP	Yes	Yes	no	Yes
Reserved DHCP	no	Yes	no	Yes
DHCP NAT	no	no	Yes (option)	Yes
Max number of MAC addresses	40	1	40	40
Status information (SNMP read)	no	no	Option by contract	no
Redundancy (option)	no	no	Yes	no
Domain, email and web space (option)	Yes	Yes	Yes	Yes
Safesurf	Yes, with fixed IP address	Yes	Yes, with fixed IP address	Yes

\*See chapter 6 Quality of service for more information

Table 2.6: Specification of fixed access services with service availability for add-on services

## 3 Wireless access services - Wireless Broadband

Wireless Broadband is a wireless access service where the mobile network is used instead of traditional fiber or copper cable. The product is a combination of wireless access and internet services. The access service can use both the 4G and 5G networks of the mobile operator. The coverage of GlobalConnect's services is based on Telia's radio infrastructure and is produced by GlobalConnect. The access form can be delivered to addresses where GlobalConnect is not present with its own fiber infrastructure but cannot be moved from the address it is delivered to.

### 3.1 Wireless Broadband

In its simplest form, the service is delivered with an electrical interface to businesses with speeds up to 100 Mbps that is reduced to 5 Mbps in the event of overuse and with a data consumption limit of 2 TB. This will be sufficient for normal data consumption for most people. Wireless Broadband thus provides a good basis for taking advantage of the benefits that modern communication technology and services offer your business.

### 3.2 Physical interface for Wireless Broadband and installation of the service

Wireless Broadband is ordered at the specified address and comes by default with installation of an outdoor antenna on the wall and a power supply adapter (PoE) with an electrical interface for connecting the customer's equipment.



Figure 3.2: Outdoor antenna (left) and power adapter (PoE) with connection interface for customer

The customer can order equipment for mounting on the roof if needed. The contractor will contact the customer to arrange installation and the desired location of the antenna. Maximum distance between outdoor antenna and power supply is 30 meters. The customer is responsible for securing approval from the property owner for outdoor antenna installation.

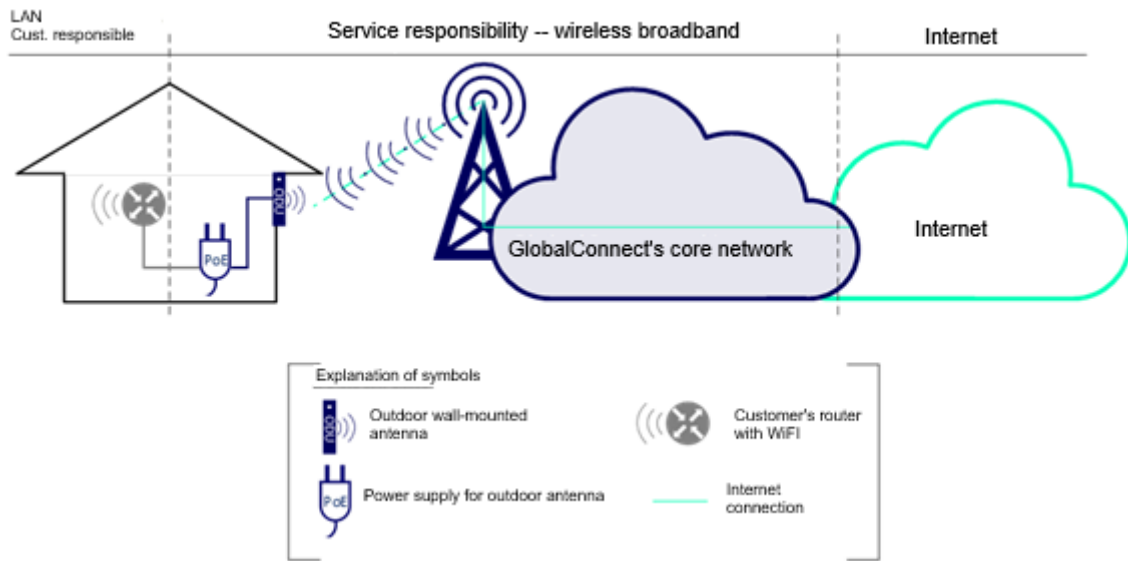
### 3.3 IP address assignment for Wireless Broadband

The service comes with 1 public IP reserved IP address which can be assigned dynamically (DHCP) or configured statically. The IP address is locked to the SIM card/outdoor antenna. The product cannot use other IP add-on services.

The IP service is based on the use of IP passthrough.

### 3.4 Service responsibility

GlobalConnect's service responsibility for Wireless Broadband is from the electrical interface on the power supply adapter located in the customer's premises to GlobalConnect's interface to the internet.



*Illustration 3.4: Wireless Broadband service and service responsibility*

### 3.4.1 Limitation of service liability

Excluded from the service responsibility defined above is the responsibility for the internal cabling in the building/building mass from the outdoor antenna to the Customer's own equipment on the Customer's premises. The service includes up to 30 meters of internal cabling (cat. 6) between the outdoor antenna and PoE adapter with electrical interface for connection of the Customer's equipment\*, but the Customer is responsible for the management and maintenance of this infrastructure. The customer is furthermore responsible for the LAN and distribution network in the office space. GlobalConnect is not responsible for network elements in the Customer's network or internal cabling at the Customer's premises.

\*Applies to ordinary business buildings where access to perform the internal cabling is unlimited and can be performed without an escort service within ordinary working hours. GlobalConnect reserves the right to invoice additional costs if access to carry out the internal cabling cannot be carried out without an escort during ordinary working hours, or if the internal cabling exceeds 30 meters and/or requires installation at heights higher than 4 meters above ground.

### 3.5 Wireless Broadband with WiFiConnect

The Wireless Broadband service can also be delivered with GlobalConnect's WiFiConnect service.

WiFiConnect is designed for businesses that need a simple firewall and a wireless network (WiFi) but can manage with just one WiFi access point.

### 3.5.1 Physical interface for Wireless Broadband with WiFiConnect and installation of the service

WiFiConnect can be ordered as an add-on service to Wireless Broadband. GlobalConnect will then install routers for WiFiConnect together with the equipment for Wireless Broadband. The WiFiConnect service provides:

- Integrated WiFi - 802.11ac, 5 GHz with 4 antennas and 802.11n, 2.4 GHz with 2 antennas
- 4 x 1 Gbps LAN ports
- Firewall

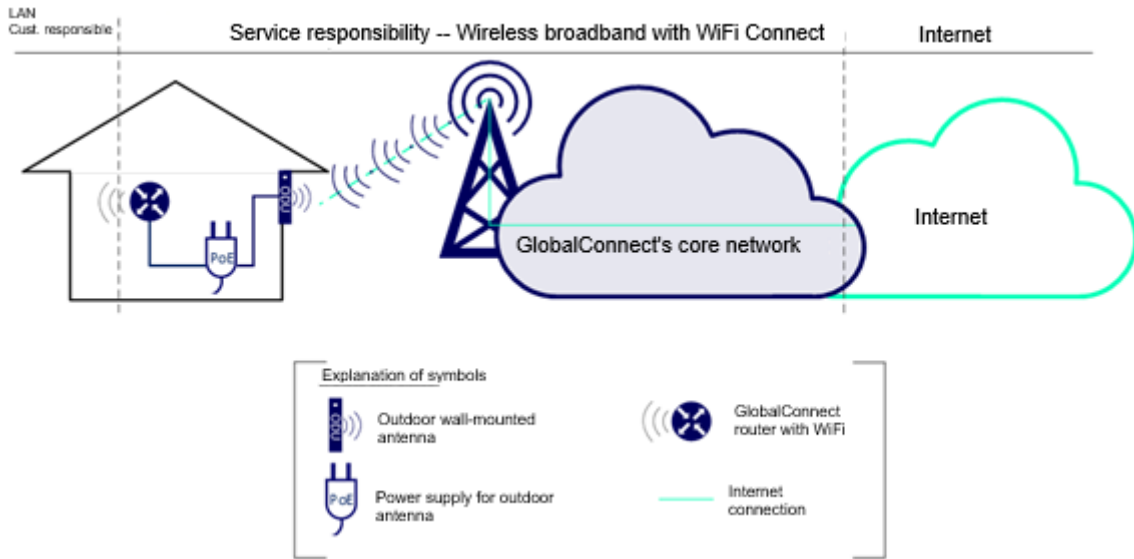


Figure 3.5.1: The router supplied with the WiFiConnect for Wireless Broadband service.

For further specification of WiFiConnect for Wireless Broadband and Internet Fiber, see Appendix A.

### 3.5.2 Service responsibility

Service responsibility for Wireless Broadband with WiFiConnect is from the LAN interface on the Customer's router to GlobalConnect's interface to the internet.



*Illustration 3.5.2: Wireless Broadband service with WiFiConnect and service responsibility*

### 3.5.3 Limitation of service liability

Excluded from the service responsibility defined above is the responsibility for the internal cabling in the building/building mass from the outdoor antenna to the WiFiConnect routers placed in the customer's premises by GlobalConnect. The service includes up to 30 meters of internal cabling (cat. 6) between the outdoor antenna and the WiFiConnect equipment\*, but the customer is responsible for the managed and maintenance of this infrastructure. The customer is also responsible for the LAN, spreader network in the office space. GlobalConnect is not responsible for network elements in the Customer's network or internal cabling at the Customer.

\*Applies to ordinary business buildings where access to perform the internal cabling is free and can be performed without an escort service within ordinary working hours. GlobalConnect reserves the right to invoice additional costs if access to carry out the internal cabling cannot be carried out without an escort within ordinary working hours and/or if the internal cabling exceeds 30 meters.

### 3.6 Specification of wireless access services with service availability for add-on services

Specification	Wireless access	
	Wireless Broadband	
	Wireless Broadband	Wireless Broadband with WiFiConnect
Coverage	Norway	Norway
Technology	4G/5G	4G/5G
Customer equipment	Outdoor antenna	Outdoor antenna and WiFi routers
Router management	no	WiFi only

Specification	Wireless access	
	Wireless Broadband	
	Wireless Broadband	Wireless Broadband with WiFiConnect
Fixed IP	no	no
DHCP	Yes	Yes
Reserved DHCP	Yes	Yes
DHCP NAT	no	Yes
Max number of MAC addresses	40	40
Status information (SNMP read)	no	no
Redundancy (option)	no	no
Domain, email and web space (option)	Yes	Yes
Safesurf	Yes	Yes

\*See chapter 6 Quality of service for more information

Table 3.5: Comparison of the different wireless access services

## 4 Technical platform

Fixed access is produced both on our own infrastructure and/or on leased connections from sub-vendors. Wireless access is produced on leased infrastructure.

The core network is a modern, high-capacity MPLS network with duplicated connections to ensure high uptime and capacity. All forms of access use the core network, which is connected to several central interconnection points for the exchange of internet traffic. These include:

- NIX 1 and 2 (Norwegian Internet Exchange)
- Netnod in Sweden
- LINX (London Internet Exchange)

Furthermore, GlobalConnect has several private interconnection agreements with national and international operators, and major content providers such as:



### 4.1 Packet size

Maximum Transmission Unit (MTU) specifies how many bytes can be transmitted in an IP packet. MTU packet size for fixed access internet services is 1,500 bytes. For wireless access internet services, the MTU packet size is 1,460 bytes.

### 4.2 Coverage check and speed

Before ordering GlobalConnect Internet, a coverage check must be performed to investigate the available infrastructure at a specified address.

The coverage check will provide answers to which access types and maximum capacities are available at the current address. Internet Fiber from GlobalConnect can be delivered on both self-owned and alternative infrastructure or from third parties. For fiber accesses, GlobalConnect has good control over the infrastructure used and the speed of the access delivered to the Customer.

For Wireless Broadband, the access speed will depend on the coverage and capacity of the mobile network at the location in question, and the stated speed indicates the maximum speed that can be achieved on the current speed profile. This may vary over time. The service cannot be provided if there is insufficient coverage/capacity at the desired address.

## 5 Access types and speeds

Speed specifications for the different access types follow below.

### 5.1 Internet Fiber

The table below shows the expected speeds for the different symmetrical fiber products (symmetrical speeds, equal download and upload speeds):

Product/speed	Download speed (Mbps)			Upload speed (Mbps)		
	Minimum	Normal	Maximum	Minimum	Normal	Maximum
10 Mbps	10	10	10	10	10	10
20 Mbps	20	20	20	20	20	20
50 Mbps	50	50	50	50	50	50
100 Mbps	100	100	100	100	100	100
200 Mbps	200	200	200	200	200	200
300 Mbps	300	300	300	300	300	300
500 Mbps	500	500	500	500	500	500
Product/speed	Download speed (Gbps)			Upload speed (Gbps)		
	Minimum	Normal	Product/speed	Minimum	Normal	Product/speed
1 Gbps	0,95	0,95	0,95	0,95	0,95	0,95
2 Gbps	2	2	2	2	2	2
3 Gbps	3	3	3	3	3	3
4 Gbps	4	4	4	4	4	4
5 Gbps	5	5	5	5	5	5
10 Gbps	9,5	9,5	9,5	9,5	9,5	9,5

Table 5.1 Expected speeds for Internet Fiber

### 5.2 Internet Asymmetric Fiber

The table below shows the expected speed for the asymmetric fiber products (asymmetric speed, downstream and upstream):

Product/speed	Download speed (Mbps)			Upload speed (Mbps)		
	Minimum	Normal	Product/speed	Minimum	Normal	Product/speed
60/20 Mbps	60	60	60	20	20	20

Table 5.2 Expected speeds for Internet Asymmetric Fiber

### 5.3 Internet Fiber Basis

The table below shows the expected speeds for the different symmetrical Internet Fiber Basic products (symmetrical speeds, equal download and upload speeds):

Product/speed	Download speed (Mbps)			Upload speed (Mbps)		
	Minimum	Normal	Product/speed	Minimum	Normal	Product/speed
75	75	75	75	75	75	75
100	100	100	100	100	100	100
200	200	200	200	200	200	200
300	300	300	300	300	300	300
500	500	500	500	500	500	500
1000	950	950	1000	950	950	1000

Table 5.3 Expected speeds for Internet Fiber Basic

### 5.4 Wireless Broadband\*

Product/speed	Speed profile (Mbps)
10	10
25	25
50	50
75	75
100	100

Table 5.7 Expected speeds for Wireless Broadband

\* Wireless Broadband access speed depends on the coverage and capacity of the mobile network at the location in question, and the figures stated in the table above indicate the maximum speed that can be achieved on the current speed profile. This may vary over time. The service cannot be provided if there is insufficient coverage/capacity at the desired address. Up to 2 TB of data consumption is included in the subscription. This will be more than enough for normal use of the access.

### 5.5 Speed limits and perceived speed \*

GlobalConnect is not responsible for speed limitations caused by circumstances or conditions beyond GlobalConnect's control and makes reservations that conditions of a technical nature in the network may mean that it is not always possible to deliver up to the maximum speed stated for the selected Service.

For example, the perceived speed of the line may be affected by factors such as Wi-Fi coverage, use of an older computer, multiple devices on the same broadband line, visits to high-traffic websites, etc. Transfer speeds outside GlobalConnect's network and onto the internet are beyond GlobalConnect's control, and lower speeds must be expected.

### 5.5.1 Speed test for broadband connections from GlobalConnect

Speed tests for broadband connections from GlobalConnect can be performed at [www.speedtest.net](http://www.speedtest.net). Select the test server from GlobalConnect that is closest to the location you are testing from. In order to obtain correct results from the speed test, three speed tests must be carried out over the course of 24 hours at 5-6 hour intervals to obtain a representative average for measurements.

In general, for all speeds and in connection with speed tests, you may experience uncertainty that could negatively affect the results by approximately 5% of the broadband line's maximum stated speed. Measured speed depends on the distance and latency between the user and the test server. Higher distance and latency will in many cases mean lower speed.

\*) Speeds are based on 1500 bytes packets and layer 2

#### 5.5.1.1 BEFORE SPEED TEST

Connect your computer directly into the equipment from GlobalConnect.

Turn off the wireless network. Wireless connections are affected by many variables and will rarely give you the same speed as a wired connection.

Disable power saving features on your computer as it negatively affects your computer's performance.

Check whether your computer has been attacked by viruses or spyware (spyware). If your computer has been attacked, it can be damaged, and this can eat up a lot of capacity. This slows down the computer and reduces broadband capacity.

Disable other software on your computer. Software such as file transfer programs can also eat up capacity.

Disconnect other machines or services connected to GlobalConnect equipment. Computers, or other equipment sharing the same broadband connection (e.g. broadband phone), will take up extra bandwidth.

After the speed test, all equipment can be reconnected.

#### 5.5.1.2 COMPLAINT ABOUT SPEED

Complaints about the speed of the internet connection from GlobalConnect can be made via [GlobalConnect.no/kundeservice](http://GlobalConnect.no/kundeservice).

### 5.6 Net neutrality and traffic management in GlobalConnect

GlobalConnect shall ensure that traffic management in the network meets the requirements laid down in the Electronic Communications Act and associated regulations. GlobalConnect prioritizes certain services ahead of other data traffic. This includes time-critical services and other specialized services. The customer can

choose whether or not to use the specialized services. GlobalConnect blocks traffic by order of the authorities or if the traffic is considered to involve a security risk for users.

#### 5.6.1 General about traffic management and traffic blocking

The term traffic management describes how traffic is managed in the network. Internet traffic in GlobalConnect's network is routed according to best-effort and without prioritization, but GlobalConnect sells WAN services that are prioritized ahead of best-effort traffic. This applies, for example, to IP telephony, which is time-critical, and where prioritization is therefore necessary to ensure a good user experience.

The term traffic blocking means that traffic to certain websites/content is blocked. As a general rule, GlobalConnect does not block customers' traffic. However, there are some exceptions that are summarized below.

#### 5.6.2 Services managed by GlobalConnect

Traffic from IPTV partners is delivered over the same fiber connection and the TV service is delivered with a higher quality of service than the internet traffic. This is being done in order to ensure a good TV picture for customers.

Traffic from IP telephony partners is delivered over the same connection and IP telephony is delivered with a higher quality of service than internet traffic. This is done to ensure good sound quality on customers' phone calls.

For all internet customers, GlobalConnect throttles UDP traffic against port 1900 (SSDP) to a low capacity. The reasons for this are that this service should normally only be used between the customer's own equipment and the customer's firewall, while at the same time we know that this has been used for many so-called reflection/amplification attacks.

#### 5.6.3 Services blocked by GlobalConnect

GlobalConnect performs "blacklisting" of DNS name lookups according to:

- 1) Ruling from Oslo District Court in connection with the blocking of websites ("Pirate Bay" etc.)
- 2) The National Criminal Investigation Service's list of domain names used in connection with child pornography.
- 3) The SafeSurf service blocks access to malicious domains and redirects the user to a secure page with notification of the reason for this. If you wish to make a reservation from SafeSurf, our Customer Center can help with this. Read more about SafeSurf in chapter 5.3.

#### 5.6.4 Complaint about GlobalConnect's traffic management

Complaints about net neutrality or GlobalConnect's traffic management can be made via [GlobalConnect.no/kundeservice](https://GlobalConnect.no/kundeservice).

## 6 ALS

GlobalConnect delivers services with an agreed SLA level. The different choices for SLA level are described in the document ServiceLevelAgreement v4.0.

### 6.1 SLA Level

GlobalConnect's redundant backbone is designed for high Service Availability. The following levels can be selected for the service:

Service Levels	Platinum**	Gold24*	Gold	Silver24	Silver	bronze	Basic
Service availability	99,99%	99,90%	99,90%	99,75%	99,75%	99,75%	N/A
Term. error correction (Remote)	<1h	<1h	<1h	<4h	<4h	<4h	<24h
Physical troubleshooting (On-site)	<3h	<5h	<5h	<8h	<8h	<8h	<48h
Incident response time	Immediate	Immediate	Immediate	Immediate	Immediate	Immediate	<8h
Feedback during troubleshooting	<1h	<2h	<2h	<4 h	<4 h	<4h	<8h
Service time	AD 00-24	AD 00-24	AD 07-23	AD 00-24	AD 07-23	BD 08-17	BD 08-16

\*Requires Managed Internet with redundancy and partial diversity

\*\*Requires Managed Internet with redundancy and full diversity

The Service Time specifies the period during which GlobalConnect performs fault correction on the services. If troubleshooting is required beyond the agreed Service Time, this must be ordered in each individual case with an associated cost for call-out and work. GlobalConnect cannot guarantee that such error correction can be performed.

### 6.2 Technical requirements for Service Availability

SLA LEVEL	SERVICE AVAILABILITY, %	TECHNICAL SOLUTION
Platinum	99.99%	Line redundancy with diversity; two CE routers with two redundant fibers connected to two different PE nodes.
Gold	99.90%	Line redundancy with partial diversity; two CE routers with two redundant fibers connected to two different PE nodes...
Bronze, Silver	99.75%	An Access linked to a PE node

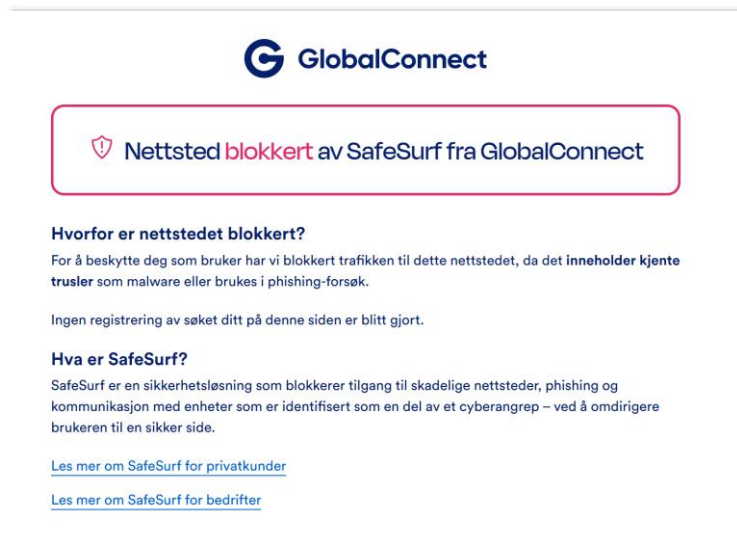
\*See table 9.0 in chapter 9 for an overview of the quality of service available for the various technologies and services.

## 7 Other add-on services

### 7.1 SafeSurf

SafeSurf is a DNS filter that provides an extra layer of security against online threats and blocks malicious content.

When a DNS request is made, it is checked against an up-to-date threat list. If the request is known in the threat database, it is blocked, and the user is redirected to a secure notification page.



The list of malicious content is continuously updated by a recognized security community. Neither the customer's IP address nor the domains the customer visits are logged or stored by GlobalConnect.

SafeSurf filters traffic based on four threat categories:

- Malware domains – Websites that distribute malware
- Phishing domains – Fraudulent websites designed to steal credentials or sensitive data
- Botnet control servers – Domains that control large networks of infected machines
- Infected systems – Blocking communication attempts from devices that are already compromised

If you as a customer do not want to use SafeSurf, you can contact GlobalConnect customer service to have the service removed.

SafeSurf is also described as a service on our website and there you can test whether the service is activated for your company. The test must be performed from your company's network.

## 8 Prices

### 8.1 Price structure

The price for the services is stated with an establishment price and a monthly price. In addition, there is a charge for internal cabling, relocation and other work that is not included in the establishment price. GlobalConnect has various solutions for internal cabling as add-on services that can be selected as an option.

## 9 Summary of specifications for the different services

Specification	Fiber Access				Wireless Broadband	
	Internet Fiber	Internet Fiber Basis	Internet Managed	Internet WiFi-Connect	Wireless Broadband	Wireless Broadband with WiFi-Connect
Coverage	Norway	Norway	Norway	Norway	Norway	Norway
Technology	Fiber	Fiber	Fiber	Fiber	4G/5G	4G/5G
Customer equipment	Media converter	Media converter	Router	Media converter and WiFi router	Outdoor antenna	Outdoor antenna and WiFi routers
Management of router	no	no	Yes	WiFi only	no	WiFi only
Fixed IP	Yes	no	Yes	no	no	no
DHCP	Yes	Yes	no	Yes	no	no
Reserved DHCP	no	Yes	no	Yes	Yes	Yes
DHCP NAT	no	no	Yes (option)	Yes	no	no
Max number of MAC addresses	40	1	40	40	40	40
Status information (SNMP read)	no	no	Option by contract	no	no	no
Redundancy (option)	no	no	Yes	no	no	no
Domain, email and web space (option)	Yes	Yes	Yes	Yes	Yes	Yes
Available SLA level	Basic, Bronze and Silver	Basic, Bronze and Silver	All levels available	Basic, Bronze and Silver	Basis	Basis
Safesurf	Yes, with fixed IP address	Yes	Yes, with fixed IP address	Yes	Yes	Yes

\*See chapter 6 Quality of service for more information

Table 9.0: Summary of specifications for the different services

## 10 Equipment delivered with different services

Services	Customer equipment	Maximum Acceleration rate	LAN Interface
Internet Fiber	Media converter	1 Gbps	Electrical
Internet Fiber	ODF	10 Gbps	Optical
Internet Fiber Basis	Media converter	1 Gbps	Electrical
Internet Fiber Managed	Cisco 1121-8P	1 Gbps	Electrical
Internet Fiber Managed	Cisco NCS540	10 Gbps	Electrical
Wireless Broadband	PoE adapter, SIM card, Outdoor antenna	100 Mbps	Electrical
Wireless Broadband with WiFiConnect	PoE Adapter, SIM card, Outdoor antenna, and WiFi router	100 Mbps	Electrical

Table 10.0: Equipment delivered with the different services

Some devices can emit bothersome fan noise and are not suitable for open-plan offices. GlobalConnect recommends placing equipment in a secure computer room with adequate cooling.

- Temperature: 0 to +50°C
- Relative humidity: 5 to 95%.

### 10.1 Limitations and recommendations

All systems with public IP addresses are normally visible from the internet and thus exposed to possible attempts at unauthorized intrusion. It is therefore strongly recommended that a firewall or router with filtering functionality is used to limit exposure to hacking, while possibly allowing access to defined internal services.

The customer is encouraged to protect against unauthorized network access by people outside the company, for example by using a firewall. The customer should also protect themselves against Malware (Malicious Software), which is a type of "parasite" that can contain viruses, worms, Trojan horses, spyware, and adware.

## 11 Appendix A - WiFiConnect for Internet Fiber and Wireless Broadband

### 11.1 INSTALLATION FOR WIFICONNECT

The service requires that the following equipment units from GlobalConnect are installed or have been installed at the customer's address:

Internet Fiber/Internet Fiber Basis	Wireless Broadband
Media converter	Outdoor antenna with SIM card
WiFiConnect router	PoE adapter
	WiFiConnect router

Table 11.1: Equipment devices for WiFiConnect

The WiFiConnect router is installed in the customer's premises at the installation address.

It is recommended to mount the router for the service on a wall in the room that has WiFi coverage.

For Internet Fiber, and if the customer has their own computer room, it is in many cases necessary to move the router out of the computer room to achieve the best WiFi coverage. GlobalConnect can use the existing distribution network between the media converter/computer room and where the router is to be installed. It is required that the existing network cable is Cat 5e or better, does not have splitters, and is no longer than 100 meters.

If there is no existing distribution network between the data room and the room where WiFi is to be established, this service can be ordered from GlobalConnect. GlobalConnect is not responsible for the management or maintenance of infrastructure used as internal cabling or distribution networks.

This also applies even if GlobalConnect has installed the cable in connection with the delivery of the service that the customer has purchased; Internal cabling Fixed price or IKCAT Fixed price. If faults are discovered with the internal cable or distribution network in connection with the search for faults in the customer's service, fault correction on this infrastructure may be charged to the customer in accordance with GlobalConnect's rates applicable at any given time.

For Wireless Broadband, the WiFiConnect router will be connected to the power supply (PoE) with an electrical interface.

## 11.2 IP ADDRESS SETUP FOR WIFICONNECT

The table below provides specific information about the IP address setup for the WiFiConnect router:

IP addresses for primary networks	IP addresses for guest networks	Purpose	Description
192.168.20.1	192.168.254.1	Router gateway IP address	
192.168.20.2-99	192.168.254.2-99	Reserved private IP addresses for static IP address serving	For use with equipment that requires a fixed IP address.
192.168.20.100-250	192.168.254.100-254	IP addresses that are dynamically assigned to equipment from the DHCP server	
193.75.75.75 and 193.75.75.193	193.75.75.75 and 193.75.75.193	DNS	
255.255.255.0	255.255.255.0	Subnet mask	

Table 11.2 IP address setup for WiFiConnect

## 11.3 WIFI FOR WIFICONNECT

The coverage and speed of the wireless network is governed by several factors. The field engineer will help you install the router in the best location for your services.

The factors that together determine the user experience on the wireless network are complex. The router delivers wireless networks on two frequencies: 2.4 GHz and 5 GHz. The 2.4 GHz network offers a longer range than the 5 GHz network, but with a lower transmission capacity. The 5 GHz network has a higher transmission capacity, but with a shorter range.

The two wireless networks have the same SSID/name, and the router will move the wireless devices that support 5 GHz to this network.

The number of simultaneous users will collectively use capacity in both the wireless networks and on the Internet access itself. Users in the two frequency ranges will not affect each other/users in the other frequency range, but they all use the internet access itself.

The physical environment of the building landscape is also crucial to the user experience. Structures such as glass, brick, metal, and concrete are challenging for wireless networks. In addition, the distance from the router to where users are located will affect signal strength and transmission capacity.

*WiFi recommendations*

For quality reasons, and to ensure a good user experience, it is recommended that the number of simultaneously connected devices does not exceed 38 devices on the WiFi network.

If possible, or the number of simultaneous devices exceeds 38, it is recommended to cable desktop devices to the router. Normally this applies to desktop PCs, laptop docking stations, POS systems, printers and some payment terminals. Wired devices do not count towards the recommended limit of 38 simultaneous devices.

Under optimal conditions, the router can provide WiFi coverage of up to 250m<sup>2</sup>. However, this requires completely optimal conditions; a single room with the router mounted high up on the wall. No interference from other radio sources and the equipment must be visible from where the user is located. In practice, this will vary for each individual location.

11.4 GUESTBOOK

In addition to the company's primary WiFi network, the service has its own WiFi guest network activated. The guest network is used with the password provided in the Quick guide for the service that is handed over to the customer at installation. To change the password or network name, contact Customer Service.

11.5 FIREWALL SPECIFICATIONS, POSSIBILITIES AND LIMITATIONS FOR WIFICONNECT

The service is delivered with a simple firewall service that is activated by default. To disable the firewall, please contact GlobalConnect customer service.

11.6 LOCATION OF WIFICONNECT ROUTERS

In connection with the delivery of WiFiConnect, GlobalConnect's installer will assess where it is best to place the router. After installation, measurements will be taken at 4 points in the customer's premises. The system's WiFi performance is rated according to the scale in the table below. This will give the customer a good overview of what to expect from WiFi in the premises.

*WiFi quality scale*



Illustration 11.6 Rating scale for WiFi signal strength in the customer premises

About the numbers in the grading scale:

**1: Measurement of >67dBm, bad.** Not possible to use broadband WiFi. Devices must be connected to the broadband with a wired connection.

**2: -Measurement of 60dBm to -67dBm, medium.** WiFi can be used.

**3: Measurement of 0dBm to -60 dBm, good.** WiFi can be used normally in most applications.

*What if the WiFi signals are bad?*

GlobalConnect is unable to provide customer support for the WiFi services if the installation receives a grade of 1. In this case, the WiFi coverage is too poor in the premises. In such cases, the customer must invest in technology that amplifies or repeats the WiFi signals to get better experience on WiFi in the premises.

## 12 Appendix B - Abbreviations and definitions

Abbreviation / Definition	Explanation
DHCP	<u>Dynamic Host Configuration Protocol</u> Automatic assignment of IP address and other IP configuration to PCs and other network devices.
DNS	<u>Domain Name Service (Server or System)</u> An internet service that converts domain names into IP addresses. Instead of having to memorize complicated number-based IP addresses, DNS services are used, which is a kind of telephone directory with an alphabetical overview of all registered domain names (e.g. GlobalConnect.no) and associated IP addresses.
IP	<u>Internet Protocol</u> Network protocol developed for what is now the internet (hence the name), but is today by far the most widely used protocol for routed networks.
ISP	<u>Internet Service Provider</u> Provider of Internet access and services.
kbps	<u>kilobit per second</u>
MAC	<u>Media Access Control</u> The equipment's unique hardware number.
Mbps	<u>Megabits per second</u>
MPLS	<u>Multi Protocol Label Switching</u> Network protocol that allows the transport of several separate networks over the same lines and network components. The separation can be compared to VLAN, but MPLS provides, among other things, a better opportunity to route traffic over redundant routing paths. GlobalConnect uses MPLS in its backbone network to combine separation of the individual customers' networks while maintaining redundancy.
MTU	<u>Maximum Transmission Unit</u> The largest amount of data or packet size that can be transferred in a frame on the physical network.
NOC	<u>Network Operation Center</u> GlobalConnect is staffed 24 hours a day and monitors the network infrastructure and services from NOC.
PHP	<u>PHP: Hypertext Preprocessor</u> PHP is a programming language mainly used to develop dynamic websites
POP3	<u>Post Office Protocol version 3</u> A default Internet protocol used to retrieve email from a remote email server over a TCP-IP connection.
RIPE	<u>European IP networks (Network Coordination Center)</u> An independent organization that manages, distributes and registers public Internet addresses.
ALS	<u>Service level agreement</u> A document describing the quality of service and service levels for services provided to the Customer.

Abbreviation / Definition	Explanation
SMTP	<u>Simple Mail Transfer Protocol</u> Is a protocol for sending email messages between email servers. Most email systems that can send email over the internet use SMTP to send messages from one server to another.
SNMP	<u>Simple Network Management Protocol</u> Is a protocol used on IP-based networks to manage and monitor machines and network equipment.
Spam	<u>English: Spam.</u> Unsolicited advertising on the internet, often sent by email.
URL	<u>Uniform Resource Locator</u> This is the term for the way documents and other resources on the internet are addressed. For example, a website on the internet is addressed as follows: <a href="http://www.GlobalConnect.no">http://www.GlobalConnect.no</a> . This URL consists of the prefix <a href="http://">http://</a> which means that the address is to a page on a World Wide Web server, while <a href="http://www.GlobalConnect.no">GlobalConnect.no</a> is the domain name of the web server. This may be followed by a directory name and file name. Other types of URL may begin with e.g. <a href="file://">file://</a> (a file stored locally), <a href="ftp://">ftp://</a> (FTP server), etc. depending on the type of resource you want to access.
VRRP	<u>Virtual Router Redundancy Protocol</u> Is a network protocol that ensures automatic allocation of available IP routes.
WWW	<u>World Wide Web</u>