

Arcstar Universal One (Global NW)

Maintenance Handbook

(Customer request maintenance in English)



NTT DOCOMO BUSINESS, Inc.

Ver1.8

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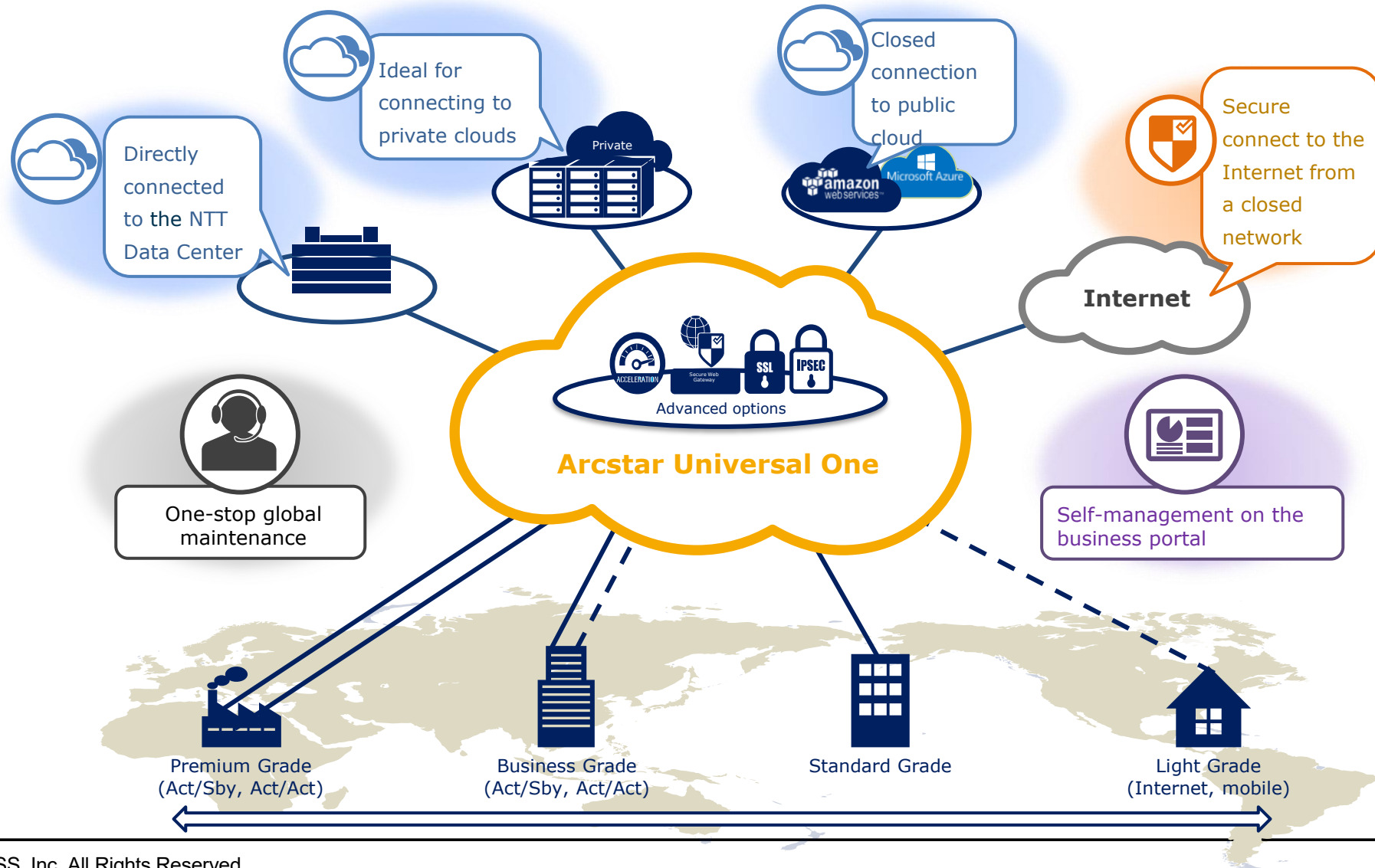
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Purpose

- This document describes the standard procedure of maintenance for our global network services.
- The purpose of this document is to facilitate the provision of our global network services by clearly indicating what we would like the Customer to understand and what we require cooperation with.
- This document describes the standard maintenance procedures, but some of the procedures can be customized as required. Some changes may be chargeable. For more information or questions, please contact the NTT PM or sales representative.

About Arcstar Universal One

Arcstar Universal One is a high-quality, high-reliability network service that offers seamless service in Japan and abroad with high-quality telecom carriers. By providing a variety of functions on a global scale, we solve our customers' ICT infrastructure challenges.



Maintenance Conditions -1*

Access line type	Common for leased line and Internet access
Monitoring	<ul style="list-style-type: none">● Ping monitoring is performed at regular intervals to the line-side (WAN) port of your CPE.● If there is no response for a certain period of time, we begin repairs.
Contacting NTT	<ul style="list-style-type: none">● Maintenance will be started 5 days after WAN activation.● If you notice network problems after the start of maintenance, please get in touch with our service contact listed in this document.● Prior to the maintenance start date, please contact the NTT sales or installation representative.
Informing the Customer in case of a problem	<ul style="list-style-type: none">● We will contact you by email in case of an outage.● We will contact you within 30 minutes after the start of repairs.● If any progress is made during the outage, progress reports (updates) will be sent approximately every 60 minutes.● We will inform you that the service has been restored after confirming that it is stable for more than 30 minutes following ping recovery.● You can also check outage status on the Business Portal (subscription required/free of charge).
During an open WAN session Requests	<ul style="list-style-type: none">● The circuits we deliver to our customers meet our company standards but we recommend application testing when the WAN is activated. Please consider using leased line access, especially for applications such as thin clients, which may not be available due to the network latency. (An additional charge may apply if the Customer requests a change in the access carrier despite the original product satisfying our compliance standards).

*1: These conditions are subject to change due to changes in the monitoring system.

*2: There are no regular progress reports conducted for Broadband Internet Access, Dedicated Internet Access, and Internet Services.

Maintenance Conditions -2* 1

Access line type	Leased line access	Internet access
Quality control	We guarantee quality on a whole and continually implement quality improvement measures.	It is very difficult to improve the quality. Leased line access is strongly recommended for mission critical or backbone system applications. This is a "best effort" service since Internet communications go through multiple ISPs, and quality may suffer (delay, packet loss, etc.).
Investigation of the cause of outage	If the cause of outage is found, we report the details of the cause. If the cause is unknown, we report the cause as unknown.	No reporting is available. We only inform you of the occurrence and recovery of outages.
Outage report	Redundant circuits are provided when both circuits fail for more than one hour or a single circuit fails for more than four hours.	Not available.
SLA * 2	Available (depends on the service)	Only "site availability," "Time To Repair," and "Outage Notification," are available (depends on the service)
Contacting the Customer for planed work (planned maintenance)	Customer will be notified in advance by email (same language as when contacting to inform of a problem).	No notifications are made.

*1: These conditions are subject to change due to changes in the monitoring system.

*2: Refunds for SLAs will be handled after the Customer makes a report.

Language for Emails and Inquiries

- English is the standard language for emails to the Customer in the event of a failure or in connection with planned work (planned maintenance).

	Basic
Outage mail	English
Planned work email	English
Phone call in case of a problem	English

Contact for Inquiries in Case of an Outage

We have a Customer support desk you can contact in case of a circuit outage.

Department in charge	Global Operation Center (GOC)
Inquiries from the Customer	E-Mail, Phone or Business Portal
Contacting the Customer	E-mail (goc@nttglobal.net) Phone : +1-720-475-4200
Reception hours	24 hours, 365 days *The response time depends on the access line carrier.
Information to keep ready when contacting us	Customer name, Customer site name, contract ID (W, VR number), etc.
Customer contact information	Preregistered emergency outage contact information
Coverage	Arcstar Universal One Coverage

Contact Us by Phone

1.



Inquiries are handled by IVR/CTI (automatic voice response). When making inquiries, please follow the voice guidance and enter the nine digits of the line ID, excluding the first letter.

2.



We need the following information about your inquiry:



Company
Name



Line ID



Line status



Event occurrence time



Customer contact
information

3.



We will issue a ticket number upon receipt of your inquiry.
If you need updates, please contact us after confirming your ticket number.

Example Trouble Ticket Number

TK000000xxxxxxx

[IMPORTANT] Registering Service Contacts

There are three types of maintenance contact information that Customer can register.

Service action notification process			Notification method	Special instructions
1 Contact information in case of failure (Outage contact)	Used for alarm occurrence notification, progress report, and recovery report.		Email	<u>All sent as To.</u> <u>No Cc and Bcc</u>
	1 First report	2 Progress Report (updates)		
2 Customer local contact information (Onsite contact)	NTT Service Desk, local carriers, and local vendors use this to directly contact local Customer by telephone in order to check the local situation during a failure, isolate the failure, and arrange visits by engineers for replacing equipment. Progress reports regarding the problem will be sent to the emergency contact number (Outage contact).		Phone	- Please register a phone number available for contact. - We recommend registering multiple contact persons and phone numbers (fixed and mobile). - If on-site confirmation is not possible, the service will be suspended for a certain period of time depending on the Customer's circumstances.
3 Planned work (maintenance) contact (Planned maintenance contact)	We will use this number when we contact you for planned maintenance work.		Email	<u>All sent as To.</u> <u>No Cc and Bcc</u>

[IMPORTANT] Customer Contact Registration

Contact information in the event of failure (email), local Customer contact information (phone), and contact information in the event of planned outage (planned maintenance) (email) must be registered.

Please contact your NTT sales representative if there are any changes in the above. If the Customer cannot be contacted, failure and isolation may not be performed.

*Items you would like us to contact you about.

Applicable line	Maintenance notification process to be modified (see the previous page)	Contact information
Line ID N/W/VR/VH	Contact address in case of failure (Outage contact) Customer local contact phone number (Onsite contact) Contact information for scheduled work (leased line) Email address (Planned maintenance contact)	*Name of contact person: (Mr./Ms.) *Department name: *Email address: *Phone number: Customer local contact phone number (Onsite contact) only

Temporary Suspension of Maintenance

Defining Suspend

If troubleshooting cannot be continued, it will be temporarily suspended at NTT's discretion. This is called "Suspend."

Examples of Suspend

- (a) Cases where we need the cooperation of the local Customer (to check the power status, accompany dispatched engineers, etc.), but the Customer cannot be contacted or is expected to take a long time to arrive at the site
- (b) Cases where a local Customer suspends response to a problem
- (c) Cases where it can reasonably be assumed that the fault is the result of a Customer-side reason
[Example] Cases in which it would be difficult to isolate faults due to ongoing Customer work
- (d) Cases of failure outside of local carrier support hours
- (e) Cases where the Customer does not have the necessary information for fault isolation and recovery

Releasing Suspend

Once we determine that it is possible to respond to a failure, such as when a Customer gets in touch with us, we will cancel the suspension period and start responding.

Suspend Considerations

- *Suspend time is excluded from failure time (failure duration) as defined in the SLA.
- *No progress report is sent during Suspend.

Maintenance Flow and Requests to Local Customers

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(Onsite Contact Customers)

Flow of fault isolation

Requests to local Customer

Communication outage detected by an NTT monitoring system and circuit investigation started with a local carrier

Notice of failure sent by email within 30 minutes of the failure detection

1

- (NTT) Checks to see if there are any alarms or errors on the device at our facility.
- Additionally, checks (by the local carrier) for the presence or absence of alarms in the carrier network

The local Customer must confirm whether there is a power outage at the Customer site.
*We cannot proceed to the next step without confirmation, in which case, we would have to suspend maintenance work.

Progress reports (updates) sent by email approximately every 60 minutes during protracted failures

2

- Contacting the Customer Onsite contact number to check status if, as a result of the alarm check, the suspected location of the outage is between the Customer site and the nearest station (last mile)

We ask Customer cooperation in checking the status of equipment at the Customer site. Know the location of the rack, CPE, DTU (NTU), etc., and find out how to get engineers to the installation site.
*Restarting the equipment at the Customer site is a precondition for the dispatch of engineers. If we cannot contact the Customer through our carrier, the service will be temporarily suspended.

3

- Dispatching engineers to Customer site and the nearest office when necessary
- (Outage in the nearest station could be found from an investigation of the Customer's site)

The Customer is required to schedule a time and be present when the engineer visits the Customer site. We will directly contact local Customer through our carrier.
*If we cannot contact the local Customer, the service will be temporarily suspended.

4

- Shipping the CPE from the vendor warehouse in the event of a CPE outage

The Customer is required to take receipt of the CPE and store it temporarily. Also, in case of replacement, the Customer must schedule an appointment and be present since the engineer will also visit.
*If the Customer has not received the CPE or we are unable to contact the local Customer, the service will be temporarily suspended.

5

- (Customer) Replacing wiring sections and cables at Customer site in the event of wiring outage
- (If the failure point is identified, we will skip 3 and 4)

The Customer is required to replace the cables and arrange wiring in the Customer premises.

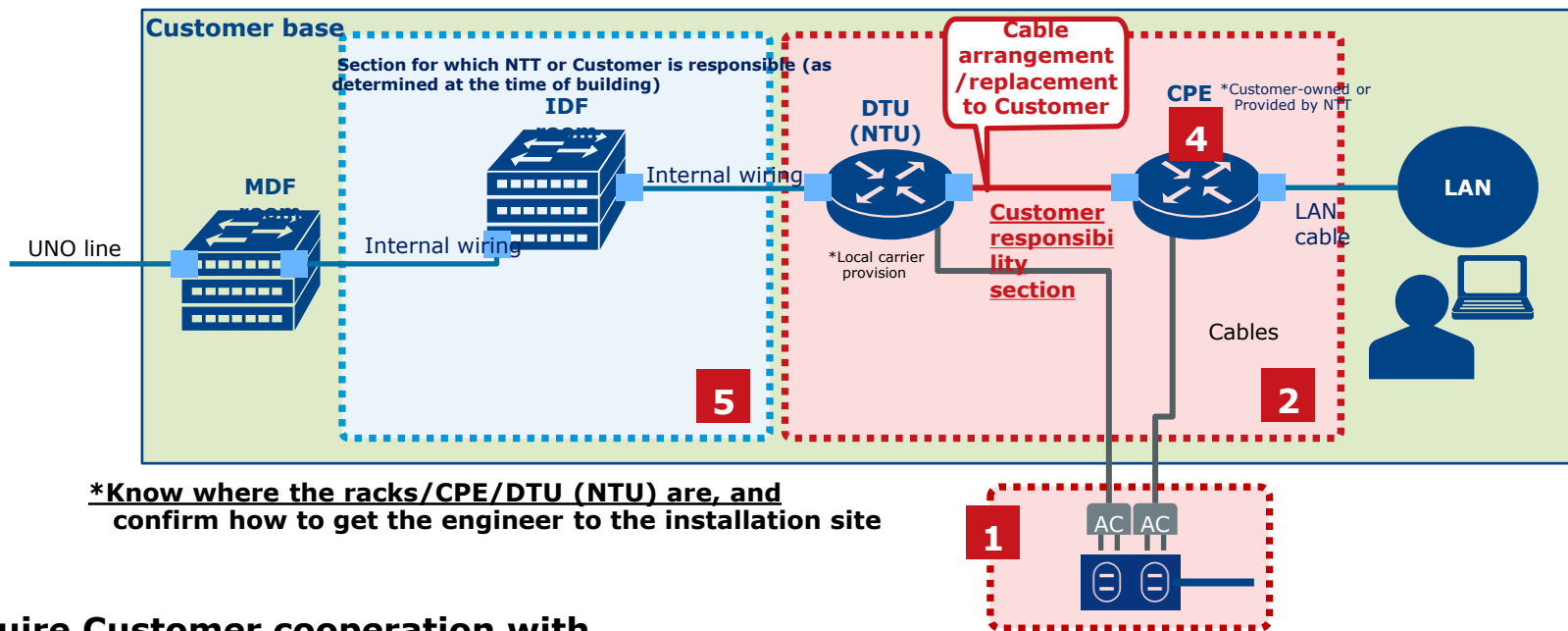
Communication recovery detected by NTT monitoring equipment

Recovery report sent via email once stability for about 30 minutes can be confirmed

(*)There are no regular progress reports conducted for Broadband Internet Access, Dedicated Internet Access, and Internet Services.

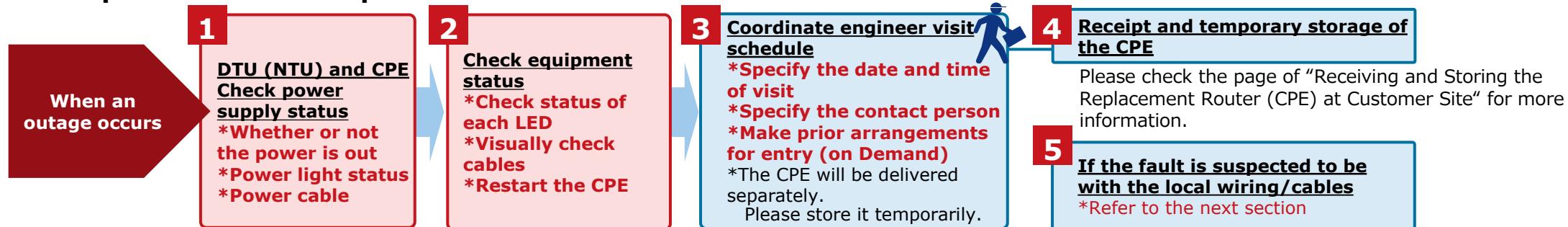
Confirmation of Customer-Installed Equipment On-Site Entry

*Points to check with local Customer



***Know where the racks/CPE/DTU (NTU) are, and confirm how to get the engineer to the installation site**

*Items we require Customer cooperation with



There are many cases where early recovery was achieved by checking and restarting the equipment at the customer site.

=> In the event of a failure, NTT will ask Customer to check the health of the equipment at the customer site and restart it.

*NTT's operator will inform Customer of the details of the confirmation work that NTT would like Customer to perform.

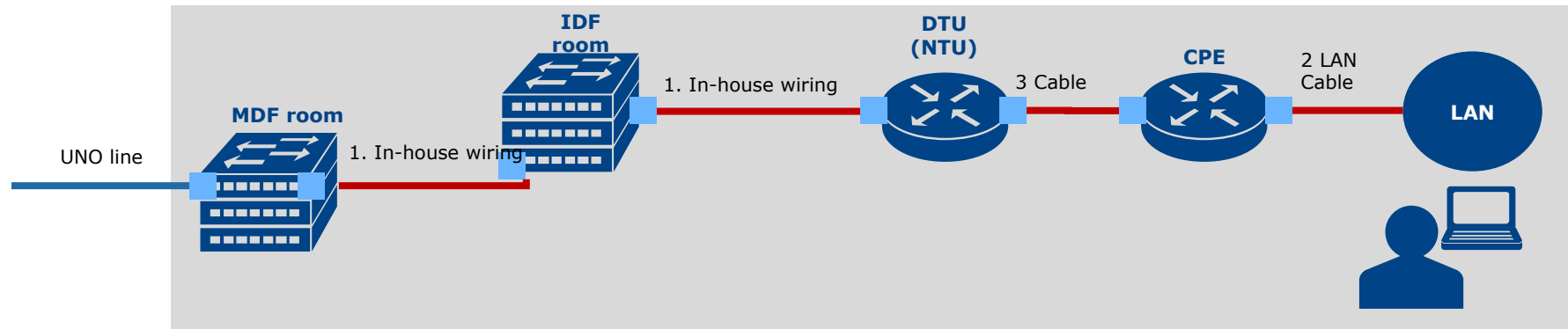
Wiring Cable Arrangements at Customer Sites

- 5** In the event of a failure in any of the wiring (internal wiring and inter-equipment cables) at Customer site, the Customer is responsible for the **“arranging replacements”** and **“performing replacement work.”**
To keep the failure time as short as possible, the Customer should have the contact information for the person responsible for preparing the various cables and arranging in-premise wiring beforehand.

The following arrangements/replacements should be made by the Customer if a malfunction is suspected

- 1 **In-house line** from MDF room to IDF room to DTU (NTU)
- 2 **LAN cable**
- 3 **Cable between DTU (NTU) and CPE**

*Customer site



* 3 will be prepared by NTT at the time of construction (in case of failure, the Customer is required to prepare it themselves).

Note: Arrangements for/replacement of cables between DTU (NTU) and CPE are the Customer's responsibility.

Internet Outage Contact

When the access line type is the Internet (Dedicated Internet Access (DIA), Broadband Internet Access (BIA)), the failure report receiving procedures and failure response are different.

1.



For Internet lines, the most common cause of line failure is a DSL modem failure. In many cases, initial Customer response is sufficient for recovering from a DSL modem failure. Therefore, in the event of a failure report, the Customer must first take the following actions and then contact Customer Support if the problem is not resolved:

- i) Turn off the DSL modem, unplug all cables to the modem and wait 30 seconds.
- ii) Reconnect the cable and turn on the DSL modem.
- iii) If the line and modem do not recover in 5 minutes, contact Customer Support.

2.



If, as a result of fault isolation, the DSL modem is determined to be the cause of the outage, we will make arrangements for an alternative DSL modem. The Customer must then replace the DSL modem.

CPE Remote Maintenance

- CPE remote maintenance is performed via WAN circuit
- In the event of a failure, we will access the CPE via WAN circuit to check the status of the equipment and isolate the failure, etc.
- In addition, we will ask the Customer to check the health of the equipment and reboot it at the customer site. Your cooperation is appreciated.

*Please check the page of “Confirmation of Customer-Installed Equipment / On-Site Entry” for more information.

*OOB access for CPE remote maintenance is NOT necessary from 21 November 2023.

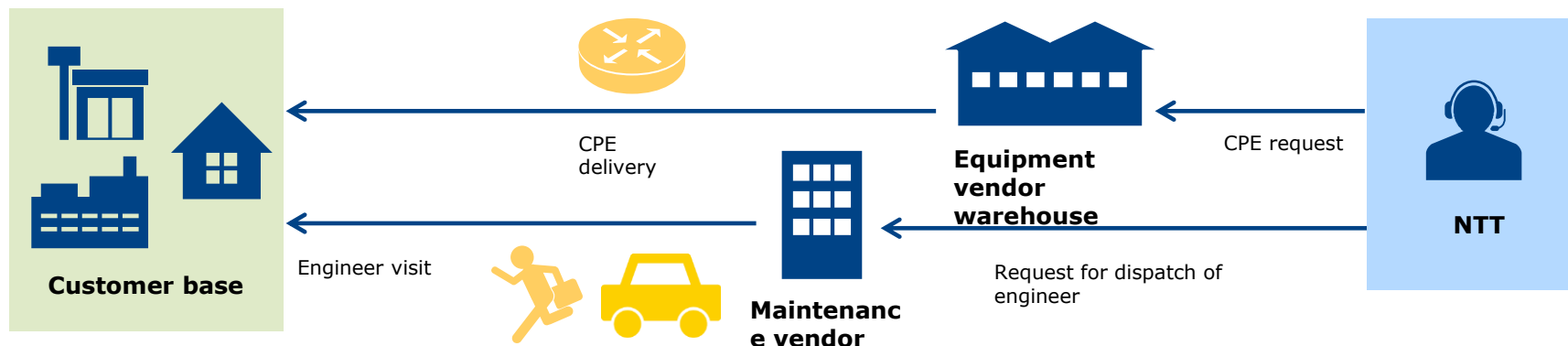
The treatment of the existing OOB access and OOB equipment for CPE remote access is as follows.

- The Customer may cancel the existing OOB access prepared by the Customer.
- NTT will not remove only the existing OOB equipment.
NTT will collect the existing OOB equipment when replacing/removing the existing CPEs.
- In the even of a failure of the existing OOB equipment itself, NTT will not replace it.
- The existing OOB equipment cannot be re-used in the event of replacement/relocation of the exiting CPEs.

Receiving and Storing the Replacement Router (CPE) at Customer Site

The Customer should receive the replacement CPE, store it temporarily and **hand it to the engineer who visits**.

- *On-site maintenance times for CPE contracts vary by country/region, and 24 hour maintenance may not be possible. Maintenance vendors typically do not have inventory and must ship equipment from the equipment vendor's warehouse.
- *In the event of a CPE Outage, (1) the equipment is shipped to the local Customer, who receives and stores it, and (2) the CPE is replaced by a maintenance vendor engineer(*), who visits at a later date.
- *In the event of a rental CPE outage, it is necessary to deliver replacement parts to the Customer site, which may cause a prolonged communication outage.
- *The cables between DTU (NTU) and CPE is NTT-ready at the time of installation. If a replacement is necessary, it needs be prepared by the Customer.



(*) Depending on a model and an area, the maintenance vendor may not be able to dispatch an engineer, and the customer may have to perform replacement work as a remote hand under the direction of the GOC or TOC.

Requesting Outage Report

If you wish to receive a failure report, please contact goc@nttglobal.net.

*Information we need at the time of receiving the request (English Only)



- Customer name
- Trouble ticket number
- Circuit (CPE) ID
- Site information
- Required outage response time line (time series is in UTC)
- Shipping address (department, name, phone number, and email address)

Format	Days to submission	Contents	Remarks
Report	5-7 business days	<ul style="list-style-type: none">• Failed circuit ID• Time of outage and time of recovery• Recovery measures• Cause of outage (limited to cases where the cause was discovered)• Time line of outage response (when requested)	<ul style="list-style-type: none">• Language: English• If the outage continues and the Customer so requests, we will make and submit a report under the following conditions:<ul style="list-style-type: none">- Outage continues for more than 1 hour (excluding Suspend time) in redundant circuits.- Single circuit outage: 4 hours or longer (excluding Suspend time)• We will not prepare a report in the following cases:<ul style="list-style-type: none">- Outage due to Customer-side factors such as a power outage- Provisions for circuits using the Internet

*It may take up to one month to check the details of the failure with the local carrier.

Request for Customer Site Work

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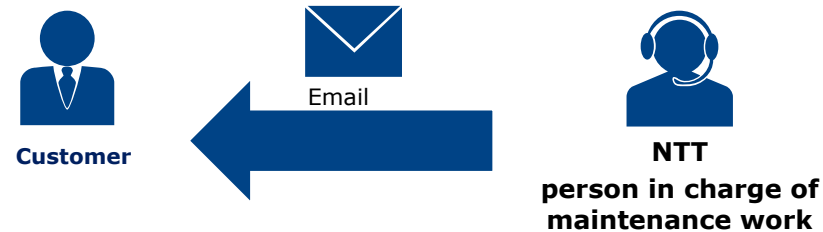
- ✓ Learn about planned tasks at Customer sites (construction that affects circuits, power outages, etc.) and maintenance. The Customer must contact the person in charge of construction in advance.
- ✓ Based on the Customer's prior contact, we will stop monitoring the relevant lines during the affected time period. If there is no prior notice from the Customer, it is necessary to start repairs and check for a power outage at the site.



Items	Contents
Language	English
Mode of communication	Email or phone Email: goc@nttglobal.net
Required Information	Line number starting with W or N, location name, Customer name
Work content and time	Work content (communication impact) and work time (local time/Japan time/world standard time)
Reception hours	NTT Business Day 02:00 -15:00 (world standard time) = 11:00 - 0:00 (Japan time)

Contacting NTT for Maintenance Work

- ✓ Regarding maintenance work that we know about in advance, we will notify the Customer by email as follows.
- ✓ We will not notify the Customer when an alarm is detected during maintenance work.



Item	Contents
Notification criteria	<ul style="list-style-type: none">*When communication interruption due to maintenance work is more than one minute, a failure notification is sent by email.*In case of an Internet line, we don't give advance notice of maintenance work.
Maintenance requirements	<ul style="list-style-type: none">*We only notify the Customer of maintenance work. We do not coordinate the schedule taking the Customer's convenience into account.*We do basic maintenance work between 00:01 - 06:00 Saturday/Sunday local time. (This is not the case in an emergency.)*NTT will give a notification two weeks in advance regarding a scheduled maintenance. (This is not the case in an emergency.)*For partner carrier maintenance work, if information is provided in advance, please notify us.*As a general rule, we will respond to construction notifications during the following time: Our business hours: 02:00-15:00 (World standard Time) = 11:00-0:00 (Japan time)

Other Notes

■ Using an access line using the Internet

Dedicated Internet Access (DIA) and Broadband Internet Access (BIA) are access lines that use the Internet. Security is secured by IPsec for communication for VPN, but the CPE is directly connected to the Internet, so it is necessary for the customer to implement security measures such as ACL setting.

■ Managed CPE IOS Versioning

After the service is launched, active IOS version upgrades will not be implemented for pre-impact analysis of bugs and vulnerabilities and preventive maintenance. Therefore, IOS version upgrades requested by customers will be charged.

However, if our company determines that an IOS version upgrade is required to resolve a bug or vulnerability failure, the version upgrade may be made free of charge as part of maintenance.

Responding to Special Maintenance Requests (Option Menu)

Standard options	Expense	Option overview
SLA	Free of charge	If we fail to meet the service level agreed with the Customer, we will refund the monthly fee according to the refund standard based on the Customer's declaration. *Depending on the service, line grade, installation location, etc., the type of SLA that can be provided and the return rate differ.
Business portal	Free of charge	You can check the contract information (partial) of the UNO service you have signed up for, as well as the repair status.
SoftMAC	Free of charge	A simple configuration change can be requested for PE and managed CPE from the business portal.
CE commander	Free of charge	This function allows you to execute commands on CPE via the business portal and check the results. *NDA contract required. *When adding to an existing line, installation fee will be incurred.
Traffic report	Free of charge	You can view traffic reports and jitter delays associated with SLAs from the business portal. (The measurement interval is between PE and PE.)
COS performance	Charges apply	You can check the CPE traffic and delay value (CE to CE). *Only managed CPE is supported. *Some service level agreements (end-end latency/jitter/P.D.R.) require a COS Performance subscription.