

NET-005 — Reproduce Degraded Communication Conditions

[Go to C.3.4 Virtual Network and Communication Requirements](#)

Statement

The [DIDO-TE](#) SHALL reproduce each [Degraded Communication Condition](#) specified by the governing [Test Definition](#).

Source

- [\[DTE2\] Non-Traditional BAA Submission](#), testing involving degraded or contested communications environments
- [\[DTE3\] Broad Agency Announcement White Paper](#), testing under degraded or contested communication conditions
- [\[DTE1\] U.S. Patent Application US20220237111A1](#), representation of communication conditions within Virtual Networks

Rationale

Distributed-system behavior may change when communication differs adversely from its nominal operating condition.

A [Degraded Communication Condition](#) represents such a condition without prescribing the particular mechanism that causes the degradation.

The governing [Test Definition](#) specifies the Degraded Communication Conditions required for a test. DIDO-TE reproduces those conditions within the communication environment used for Test Execution.

A Degraded Communication Condition may involve changes to one or more [Communication Characteristics](#). The specific characteristics, values, or constraints are determined by the governing Test Definition and associated [Configuration](#).

This requirement does not imply that every Degraded Communication Condition includes packet loss, increased [Latency](#), reduced bandwidth, delay variation, disconnection, or another particular network impairment.

The mechanisms used to reproduce the condition remain implementation-neutral.

Applies To

- [DIDO-TE](#)
- [Degraded Communication Condition](#)
- [Virtual Network](#)
- [Communication Characteristic](#)
- [Communication Parameter](#)
- [Test Environment](#)
- [Test Definition](#)
- [Test Execution](#)
- [Configuration](#)

Verification

Verification confirms that:

1. Each Degraded Communication Condition specified by the governing Test Definition can be reproduced.
2. The reproduced condition can be distinguished from the nominal communication condition.
3. The Communication Characteristics affected by the reproduced condition correspond to those specified by the governing Test Definition.
4. Communication impairments not specified by the governing Test Definition are not required by this requirement.
5. The reproduced Degraded Communication Condition is traceable to the governing Test Definition.
6. Reproduction of the condition does not require a particular networking product, network emulator, middleware implementation, or physical network.

Verification includes a Test Definition specifying at least one Degraded Communication Condition and confirms that the specified condition is reproduced during Test Execution.

Traceability

Plugin Backlinks: Nothing was found.

ConOps Relationship

This requirement supports testing of distributed-system behavior under communication conditions that differ adversely from nominal conditions.

NET-004 governs configuration of specific communication behavior. NET-005 governs reproduction of the Degraded Communication Conditions specified for the test.

Delivery Phase

TBD

Requirement Status

Draft

Statement Reference

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{{section>dido:03-dido-te:99-annexes:annex-c-requirements:03-functional-requirements:03-04-virtual-network-and-communication-requirements:net-005-reproduce-degraded-communication-conditions#Statement&noheader&nofooter&noeditbtn}}
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