ENV-004i — Control Communication Conditions

Go to ENV-004 — Provide Deterministic Test Environment

Statement

The DIDO-TE SHALL control communication conditions in accordance with the applicable Test Definition.

Derived From

- ENV-004 — Provide Deterministic Test Environment
- [DTE5] DIDO-TE Requirements Register, source requirement identifier and obligation to be assigned
- [DTE6] Structured Information Processing Reference Architecture (SIP-RA)
- [DTE7] Federated Data Interpretation Systems Reference Architecture (FDIS-RA)

Rationale

Communication conditions influence message delivery, event ordering, synchronisation, availability, throughput, latency, and the behaviour of distributed Nodes.

Relevant conditions include latency, jitter, bandwidth, loss, duplication, corruption, reordering, interruption, routing, addressing, protocol behaviour, and connection state.

Uncontrolled differences in these conditions introduce environmental variation into a Test Execution.

The applicable Test Definition distinguishes conditions requiring direct control from conditions requiring measurement and recording.

Applies To

- Test Environment
- Test Definition
- Test Execution
- Test Object
- Node
- Test Resource
- Configuration
- Constraint
- Evidence

Verification

Verification confirms that:

- The applicable Test Definition identifies each communication path that influences the Test Execution.
- Each communication path has a unique identity.
- Each communication path identifies its endpoints, interfaces, protocols, and applicable network boundaries.
- The Test Definition specifies the required communication conditions for each path.
- Each specified condition identifies its required value, range, state, or tolerance.
- The DIDO-TE applies each required communication condition.
- The DIDO-TE measures actual communication conditions during Test Execution.
- The DIDO-TE detects conditions outside the specified tolerances.
- The DIDO-TE records communication-path identities, configurations, measurements, changes, interruptions, and detected deviations as Evidence.
- The DIDO-TE maintains Traceability among each communication condition, the affected communication path, the Test Definition, the Test Execution, the Evidence, and the Test Results.
- An unidentified, uncontrolled, unmeasured, unsupported, or untraceable communication condition constitutes nonconformance with this requirement.

Verification includes:

- Inspection of the communication paths identified by the Test Definition
- Inspection of endpoints, interfaces, protocols, network boundaries, and required communication conditions
- Comparison of required and applied communication conditions
- Measurement of communication conditions during Test Execution
- A negative assessment using latency or jitter outside the specified tolerance
- A negative assessment introducing loss, duplication, corruption, reordering, or interruption
- Confirmation that the DIDO-TE detects and records each deviation
- Inspection of communication Evidence and Traceability records
- Confirmation that each negative assessment produces a nonconformance result

Referenced By

Plugin Backlinks: Nothing was found.

Related Architecture Sections

- Add links to the architecture sections governing communications, network control, fault injection, monitoring, Evidence, and Traceability.

Delivery Phase

Assign the applicable delivery phase.

Requirement Status

Draft

Statement Reference

Use the following syntax to reference this requirement's Statement section from another DokuWiki page:

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{{section>dido:03-dido-te:99-annexes:annex-c-requirements:02-test-environment-requirements:env-004-provide-deterministic-test-environment:env-004i-control-communication-conditions#Statement&noheader&nofooter&noeditbtn}}
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