10.7 Bidirectional Review and Impact Analysis

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Traceability supports review in two directions.

Forward traceability starts with a conceptual concern and follows it outward through logical design, implementation mapping, deployment, and evidence. It helps reviewers confirm that the system implements and evidences the intended architecture.

Backward traceability starts with evidence, deployment artefacts, implementation artefacts, or logical elements and traces back to the conceptual concern they support. It helps reviewers determine why an artefact exists and which architectural claim it supports.

Bidirectional traceability supports impact analysis. When a concept changes, reviewers can identify affected logical elements, implementation artefacts, deployment artefacts, and evidence packages. When an implementation artefact changes, reviewers can identify the logical and conceptual elements at risk. When evidence is lacking, reviewers can identify the claim, deployment artefact, implementation artefact, and logical element that require review.

Examples of impact-analysis questions include:

- Which implementation artefacts realise this logical endpoint?
- Which deployed Nodes use this Data Structure Definition?
- Which evidence items support this release-control claim?
- Which tests exercise this Runtime Plane?
- Which profiles inherit this Classification Path?
- Which artefacts require review if a Communication Endpoint changes?