Skyral

Service Definition Document: Skyral Decision Support and Problem Solving as a Service for Network Operations and Performance Planning

Service Name: Skyral Decision Support and Problem Solving as a Service for Network Operations and Performance Planning
Supplier Name: Skyral Defence Ltd
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1. About Skyral

Skyral is a UK-headquartered modelling, simulation and decision-support company that helps telecom operators, fibre companies, national infrastructure programmes and governments design, optimise and operate complex communications networks. Using large-scale digital twins and agent-based modelling, Skyral represents how topology, routing, traffic, assets, outages and operational decisions interact across fixed, mobile and hybrid networks.

Network customers use Skyral to:

- Understand how demand, traffic, faults and change programmes affect performance, resilience and user experience.
- Test architectures, rollout and migration plans before deployment to reduce risk and cost.
- Connect telemetry, performance data and digital twins to support continuous optimisation of networks through the Sell–Build–Run lifecycle.

Skyral CORE and its components provide the underlying capability to build, run and govern simulation-driven network digital twins as a long-lived decision-support capability.

2. Service Overview

Service name

Skyral Decision Support and Problem Solving as a Service – Network Operations and Performance Planning

Purpose

Skyral Decision Support and Problem Solving as a Service (Network Operations and Performance Planning Edition) is a focused, typically one-month engagement that shapes how modelling and simulation should be used to support network performance planning, operations and investment.

It is designed to:

- Turn broad concerns about capacity, resilience, rollout risk, congestion or SLAs into a structured, decision-ready view.
- Produce a prioritised set of network levers and use cases on which to focus limited engineering and investment resources.



- Define a clear follow-on path into Skyral Modelling and Simulation Development as a Service (Network Edition) and full network digital-twin programmes.

This edition is aimed at telecom operators, fibre and FTTx companies, mission-critical network providers, national-scale digital infrastructure programmes and government connectivity initiatives.

Typical duration and team

A standard engagement is one month of effort, delivered by:

- A network / telecoms Subject Matter Expert (SME) with experience in architecture, planning or operations.
- An Applied Scientist specialising in modelling, simulation and analytics.
- A Product Owner responsible for mapping outcomes into Skyral services, products and the customer's OSS/BSS and data landscape.

Longer or multi-phase engagements can be scoped where the network footprint or stakeholder set is particularly complex.

3. Method and Activities

This service focuses on strategic uncertainties in network operations and performance—such as demand growth, fault behaviour, architecture options, migration risk or resilience—where better predictive insight and scenario analysis would materially improve outcomes.

Core steps

1. **Clarify the network problem and objectives**
    - Establish a shared understanding of the core challenges (e.g. FTTx rollout planning, 5G expansion, congestion hotspots, resilience targets, migration to new core, SLA performance).
    - Capture desired outcomes and constraints: throughput, latency, availability, resilience, cost, energy, regulatory requirements, commercial commitments.
2. **Map network topology, operations and levers**
    - Disaggregate the problem using logic trees and causal structures across topology, routing, capacity, traffic patterns, assets, operations and change programmes.
    - Identify key levers such as topology changes, rollout sequencing, redundancy, spectrum and capacity allocations, QoS policies, fault detection and response mechanisms, maintenance strategies and monitoring enhancements.



    - Map interdependencies between access, aggregation, core, backhaul, peering, data centres and supporting infrastructure.
3. **Define and refine KPIs and metrics**
    - Identify KPIs and metrics directly linked to key levers and objectives (e.g. throughput, latency, jitter, packet loss, availability, utilisation, fault rates, MTTR, energy use, cost-per-bit, SLA performance).
    - Clarify how trade-offs will be judged (e.g. performance vs capex/opex, resilience vs redundancy cost, energy vs capacity, rollout speed vs risk).
4. **Develop high-level causal and probabilistic network models**
    - Using the Simulation Scaffold Framework, Skyral SMEs and applied scientists build high-level causal and probabilistic models of network behaviour.
    - Represent how demand growth, outages, maintenance, migrations and configuration changes propagate through the network and affect KPIs and user experience.
5. **Prioritise network initiatives and levers**
    - Apply advanced heuristics, cleaving maps and quantitative reasoning to rank initiatives and levers by impact, feasibility, risk and time-to-value.
    - Use digital-twin concepts and early scenario analysis to compare options, focusing attention on those that most improve performance, resilience and lifecycle economics.
6. **Develop a practical network performance work plan**
    - Translate the prioritised initiatives into a concrete work plan that can guide capacity planning, architecture evolution, rollout programmes and operational optimisation.
    - Define data needs (e.g. topology, traffic telemetry, fault and incident data, PMO plans, vendor specs), stakeholders, integration points (NMS, OSS/BSS, data lakes, analytics) and decision checkpoints.
7. **Frame follow-on network digital-twin and simulation work**
    - Define how a network digital twin should be scoped and built in follow-on phases, including key scenarios, experiments and decision-support use cases.
    - Outline how Skyral CORE, the Scenario Service and Orchestrator will be used to run large-scale scenario experiments, migration rehearsals and “what-if” analyses at operational cadence.

4. Service Outputs

At the end of the engagement, the customer receives:

- **Network decision narrative**
    - A clear articulation of the network operations and performance problem, context, constraints and objectives.



    - A visual representation of key drivers, interdependencies and levers across topology, traffic, assets, operations and programmes.
- **Prioritised network initiatives and levers**
    - A ranked list of network initiatives (e.g. architecture variants, rollout sequences, resilience measures, monitoring enhancements, capacity upgrades, policy changes) with rationale and key assumptions.
    - Identification of the top initiatives and levers best suited for simulation and digital-twin development.
- **KPI and measurement framework**
    - Defined KPIs and metrics mapped directly to prioritised levers and initiatives, aligned with operational and commercial targets.
    - Commentary on how these indicators should be tracked and used in future scenario analysis, operational reviews and investment decisions.
- **High-level causal / probabilistic network model**
    - A high-level causal and probabilistic model of the network problem, suitable as a scaffold for detailed simulation and for engaging technical and non-technical stakeholders.
- **Strategic roadmap and action plan**
    - A strategic roadmap and actionable plan that guides follow-on Skyral Modelling and Simulation Development as a Service (Network Edition), network digital-twin build-out and integration with existing tooling.

Outputs are delivered in accessible formats (e.g. slide pack, report and, where appropriate, simple interactive scenario views) that can be used directly in technical, commercial and governance forums.

5. Roles and Responsibilities

Skyral roles

Role	Description	Key responsibilities
SME	Network / telecoms expert leading the engagement	Form the core project team; define the network problem; shape initiatives and levers; lead prioritisation and KPI design; co-create work plan.
Applied Scientist	Modelling, simulation and analytics specialist	Understand network architectures and initiatives; gather and analyse data; build causal/probabilistic models; apply statistics and heuristics for prioritisation; assess modelling feasibility.

Product Owner	Owns service delivery and transition into Skyral services / products	Plan and manage the work; translate outcomes into Skyral services and products; define follow-on Modelling and Simulation Development as a Service scope.

Customer responsibilities

- Provide access to relevant network engineering, operations, architecture, planning, finance and data stakeholders.
- Share existing designs, rollout and migration plans, performance metrics, telemetry and cost data where appropriate.
- Confirm regulatory, data-governance and security constraints early.
- Participate in workshops, reviews and prioritisation sessions; agree scope boundaries, timelines and decision processes.

6. Service Features and Benefits for Network Operations and Performance

Key features

- Network-wide problem definition spanning design, deployment and operations.
- Causal and probabilistic mapping of performance drivers and resilience risks.
- KPI and measurement framework design linked to network levers and initiatives.
- Evidence-based prioritisation of initiatives and levers using advanced heuristics and structured reasoning.
- High-level decision model and strategic roadmap into network digital-twin and simulation programmes.

Key benefits

- **Faster clarity**: Move quickly from generic concerns about capacity, resilience or rollout risk to a precise, shared understanding of what drives network performance.
- **Sharper focus of engineering and capex**: Direct effort and investment to the network changes that deliver the greatest improvement in performance, resilience and lifecycle cost.
- **Decision-ready digital-twin scope**: Enter network digital-twin and modelling work with a well-framed, prioritised scope, reducing rework and delivery risk.
- **Explainable, defensible decisions**: Use transparent causal and probabilistic models to support internal business cases, regulatory engagement and customer confidence.



- **Continuous optimisation foundation**: Establish a structured path into ongoing simulation-driven planning, migration rehearsal, outage impact analysis and operational optimisation.

7. Dependencies and prerequisites (including customer responsibilities)

This service depends on access to sufficient network, operational and delivery context to build a meaningful decision narrative and work plan.

Key prerequisites (customer side):

- Access to relevant stakeholders across network engineering, architecture, operations, planning, finance and data/IT, including decision-makers for scope and prioritisation sign-off.
- Provision of current and target-state network information: high-level topology, key sites and links, technology domains (fixed, mobile, IP core, transport), major programmes and migration plans.
- Provision of representative performance, demand and cost data where available: traffic summaries, utilisation views, SLA/availability data, incident/fault summaries, and high-level cost drivers (capex/opex categories).
- Early confirmation of regulatory, security and data-governance constraints, especially where data is sensitive, sovereign, safety-critical or covered by export controls.

Where underlying production tools or data sources are immature or unavailable, Skyral will use proxy data, synthetic profiles or partial models to proceed, with limitations clearly flagged in the decision narrative and work plan.

8. Onboarding and implementation approach

Onboarding is structured as a short, time-boxed engagement that quickly moves from discovery to decision-ready outputs.

Indicative approach:

1. Initiation and scoping
    - Confirm objectives, key questions, success criteria and constraints (e.g. capacity risk, resilience gaps, rollout uncertainty, SLA targets).
    - Agree stakeholders, cadence of sessions, data access approach and approvals.
2. Discovery and data gathering
    - Run structured workshops with network, operations and programme teams to capture topology, initiatives, risks and hypotheses, using Skyral's Simulation Scaffold Framework to map the problem.



- Ingest and review available artefacts: high-level designs, rollout/migration plans, performance summaries, incident/fault overviews and cost baselines.

3. Modelling and prioritisation
    - Construct high-level causal and probabilistic models to represent demand, outages, migrations and operational behaviour across the network.
    - Apply heuristics and quantitative reasoning to rank initiatives and levers by impact, feasibility and time-to-value.
4. Playback and refinement
    - Test interim narratives, initiatives list and KPI framework with stakeholders; refine assumptions and scenarios based on feedback.
5. Final outputs and transition
    - Deliver the decision narrative, prioritised initiatives, KPI framework, high-level model and roadmap, including clear options for transition into Skyral Modelling and Simulation Development as a Service and wider digital-twin programmes

9. Configuration, customisation and integration

This service is primarily a consulting and decision-support engagement, configured around the customer's specific network context, objectives and constraints

10. Service levels and performance (including availability targets)

Configuration and customisation:

- Tailoring of workshops, problem decomposition and logic trees to the customer's domains (e.g. FTTx, 5G, mission-critical WAN, national infrastructure) and current programmes.
- Custom definition of KPIs, levers and scenarios aligned to the organisation's operational model, commercial commitments and regulatory environment.
- Adaptation of high-level models to reflect customer-specific architectures, resilience patterns, fault processes and rollout approaches.

Integration (lightweight in this service):

- Use of existing network artefacts and exports from OSS/BSS, NMS, PMO tools and analytics platforms as inputs (e.g. diagrams, CSV extracts, summary reports), without requiring deep system integration.
- Optional definition of how future Skyral digital-twin deployments would integrate with live systems (OSS/BSS, data lakes, observability platforms) for



continuous simulation and “run”-phase use, captured as part of the strategic roadmap.

11. Support model and service desk (hours, channels, response/resolve targets)

Given this is a time-boxed professional service rather than a 24×7 managed platform, service levels focus on delivery quality, responsiveness and agreed milestones rather than system uptime.

For any supporting Skyral platform components temporarily used to host interactive scenario views, target availability would generally follow the underlying Skyral CORE / SPORE operational practices in secure cloud or data-centre environments, but formal availability SLAs are normally attached to ongoing platform services rather than this shaping engagement.

Support for this service is primarily delivered by the assigned Skyral engagement team (SME, Applied Scientist, Product Owner) rather than a generic helpdesk

12. Security model and accreditations (including any ISO, Cyber Essentials, data protection)

Skyral’s approach to security is built around secure-by-design engineering, cloud-neutral deployment via SPORE, and formal certifications.

Security model:

- Support for deployment into secure cloud, on-premises data centres and sovereign or air-gapped environments, with consistent operational, monitoring and governance controls through Skyral’s SPORE layer.
- Role-based access and governance mechanisms across Skyral CORE components (Content Catalogue, Scenario Service, Orchestrator, Data Plane, Lens) to ensure that models, scenarios and outputs are controlled, auditable and appropriately segmented.
- Design and operation aligned to data-protection and information-assurance principles relevant to defence, national security and regulated sectors.

Accreditations and standards (as provided):

- Cyber Essentials and Cyber Essentials Plus – Skyral holds both certifications. Verified by user; to be evidenced with current certificates on request.
- ISO 9001 – Skyral holds certification for quality management. Verified by user; to be evidenced with current certificates on request.



- ISO 27001 – Skyral holds certification for information security management. Verified by user; to be evidenced with current certificates on request.

Data protection:

- Customer data used in this service is limited to what is necessary for analysis and scenario framing; where appropriate, anonymisation, aggregation or synthetic data may be used to reduce sensitivity.
- Any processing of personal data follows applicable UK data-protection legislation, with roles and responsibilities defined in the underlying contract or data-processing agreement.

13. Data management (location, retention, backup, restore, portability)

Data used in this service typically consists of: high-level topology, traffic and performance summaries, programme plans, cost summaries and derived modelling artefacts.

Location:

- Skyral can operate in the cloud, on-premises or sovereign environments using SPORE, enabling deployment of modelling and decision-support components in regions or infrastructures that align with customer and regulatory requirements.
- For this one-month engagement, data and artefacts are usually stored in Skyral's secure collaboration and modelling environments, or in customer-hosted repositories where preferred.

Retention and backup:

- Working data and artefacts (models, narratives, roadmaps) are retained for at least the duration of the engagement plus an agreed period (e.g. 6–12 months) to support follow-on work, unless customer policies require earlier deletion.
- Underlying platforms used by Skyral provide standard backup and resilience capabilities for the environments in which they are deployed; recovery time objectives (RTO/RPO) are normally defined at the platform or managed-service level rather than for this shaping service.

Portability and export:

- Final outputs (documents, diagrams, models at appropriate granularity) are provided in commonly used formats (e.g. Office formats, PDFs, and where possible, model exports or structured configuration/parameter sets) to facilitate reuse by the customer and partners.

- On request, Skyral will support reasonable data export and documentation of model structures to aid internalisation or third-party uptake, subject to licensing and IP terms.

14. Business continuity and disaster recovery approach

- For this service, business continuity focuses on ensuring the engagement can proceed and deliver its outputs despite issues affecting personnel, tools or hosting environments.
- Formal DR metrics (RTO/RPO) and continuity obligations are normally associated with ongoing managed services, and would be detailed in platform-level or enterprise agreements rather than this shaping engagement.

15. Service usage limits and constraints

This is a scoped, time-boxed decision-support engagement rather than an open-ended modelling service.

Typical limits and constraints:

- Duration: standard engagement of approximately one month of effort, with scope sized accordingly; larger or multi-phase engagements require explicit scoping.
- Breadth vs depth: emphasis on high-value problem framing, causal/probabilistic modelling and prioritisation, not on building fully detailed, production-grade digital twins across every part of the network.
- Model fidelity: models are intentionally high-level scaffolds suitable for decision-support and roadmap definition; fine-grained engineering models are delivered in subsequent Skyral Modelling and Simulation Development as a Service or digital-twin programmes.
- Data availability: where data is limited or incomplete, outputs may include caveats and clearly labelled assumptions; this may constrain the robustness of quantitative conclusions.

16. Pricing model and units (linking to framework pricing rules)

The pricing model for this service is a fixed-scope, time-boxed engagement, with options to extend into further phases through follow-on engagements (such as Skyral Synthetic Development Services).

Core structure:

- Core one-month engagement priced as a fixed-price package based on defined deliverables (decision narrative, prioritised initiatives, KPI framework, high-level model, roadmap) and agreed stakeholder footprint.
- Extensions or additional phases (e.g. extra domain deep-dives, expanded stakeholder scope, additional scenario families) priced either as additional fixed-price work packages or time-and-materials under the relevant framework rate card.
- Any subsequent Skyral Modelling and Simulation Development as a Service or digital-twin deployment would be priced separately, reflecting model build effort, platform usage and, where relevant, managed-service components.
- Exact pricing, units (e.g. person-days, work packages) and linkage to framework pricing rules are defined in the commercial schedule.

17. Change management (how changes to scope or volumes are handled)

Change management approach:

- Initial scoping defines: in-scope networks or domains, key questions, stakeholder groups, indicative data sets, and planned workshops/playbacks.
- Any material change (e.g. inclusion of additional network domains, significant new questions, extra stakeholder groups, or deeper technical integration) triggers a joint review to assess impact on timelines, effort and deliverables.
- Small changes are handled within the existing scope where feasible (e.g. refining KPIs, adjusting prioritisation criteria, adding closely related scenarios), with impacts recorded in the engagement log.

Larger changes require a formal change note or contract variation, potentially introducing:

- Additional work packages or phases.
- Adjusted timelines and milestone dates.
- Revised commercial terms (price, units, or rate-card usage).

18. Exit and offboarding (including data export and handover)

Exit deliverables and handover:

- Provision of final deliverables in agreed formats, including decision narrative, visual driver/lever maps, prioritised initiatives, KPI framework, high-level model description and roadmap.
- Walkthrough session(s) to explain the outputs, underlying assumptions, and how they can be used to inform architecture, planning and operational decisions, as well as the path into digital-twin build-out.
- On request, export of relevant configuration or model artefacts (e.g. scenario definitions, parameter sets, simplified model structures) in documented form, to support internal teams or partner organisations.

Data and environment offboarding:

- Removal or anonymisation of customer-specific data from Skyral environments in line with contractual data-retention terms and any customer-specific security requirements.
- Termination of access for customer users to any temporary, Skyral-hosted interactive scenario views unless explicitly agreed as part of ongoing services

19. Key assumptions and exclusions

Key assumptions:

- The customer can provide timely access to relevant stakeholders and data to meet the one-month engagement timeframe.
- The engagement focuses on decision-support and prioritisation, not on full production implementation of network changes or detailed low-level engineering design.
- Initial models and scenarios are used to compare options and highlight risks/trade-offs rather than to produce exact, line-rate predictions for every element of the network.

Key exclusions (unless explicitly added to scope):

- Full-scale, production-grade network digital-twin build and ongoing run-time integration with live OSS/BSS and telemetry platforms (covered by subsequent Skyral Modelling and Simulation Development as a Service and platform services).
- Detailed vendor-specific configuration generation, low-level design artefacts or direct changes to production networks. Unverified.

- Formal regulatory submissions or safety cases; Skyral's outputs can inform such work but do not replace formal assurance processes.

20. Related services and optional add-ons

Related Skyral services:

- Skyral Modelling and Simulation Development as a Service (Network Edition): builds detailed network digital twins and agent-based models aligned to the prioritised levers and scenarios identified in this engagement.
- Mission Planning & Decision Support services for defence and national security, using large-scale agent-based modelling to explore courses of action, logistics and resilience across multi-domain operations.
- Health Policy & Programme Strategy simulation services, applying similar techniques to patient flows, resource allocation and intervention strategies for health systems.

Optional add-ons to this specific service:

- Additional deep-dive modules on specific domains (e.g. 5G RAN, backhaul, peering, data-centre interconnect), with enhanced modelling fidelity and scenario coverage. Purchased as additional modules of this service for discovery, Skyral Advisory services, or Modelling and Simulation Development as a Service, depending on the customer need.
- Rapid proof-of-concept digital-twin instances using existing designs and synthetic traffic to demonstrate interactive scenario analysis beyond the decision narrative through Skyral Modelling and Simulation Development as a Service and using Skyral CORE.
- Extended roadmap and business-case support, including structured inputs for investment boards or regulatory submissions.

21. Contact, account management and reporting

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