

# Status update

draft-irtf-nmrg-ibn-concepts-definitions-02

“Intent-Based Networking –  
Concepts and Definitions”

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# Status update

- Draft update -02 posted on September 15
- Updates:
  - Addressed comments received on mailing list (Ali Rezaki)
  - Expanded section 6
    - More details on IBN functionality
    - Expanded into new subsections for Intent Fulfillment and Intent Assurance
  - Sharpened distinction from Policy-Based Management
  - Added intent examples
  - Refactored “Items for Discussions” into “Additional Considerations”
  - Various editorial improvements

# Document structure

- 1-3. Introduction, Key Words, Definitions and Acronyms
4. Introduction of Concepts
  - 4.1. Intent and Intent-Based Management
  - 4.2. Related Concepts
    - 4.2.1. Service Models
    - 4.2.2. Policy and Policy-Based Management
    - 4.2.3. Distinguishing between Intent, Policy, and Service Models
5. Principles

6. Intent-Based Networking - Functionality
  - 6.1. Intent Fulfillment
  - 6.2. Intent Assurance
7. Lifecycle
8. Additional Considerations
9. IANA Considerations
10. Security Considerations
11. References

# Next steps

- We believe the document is reasonably stable now
- Would like to assess readiness for progression to next steps
  - Solicit “last call”-style reviews
  - Submit to IRSG review (prior to IETF 109 cutoff?)

Thank you!

# Intent Examples

- "Steer networking traffic originating from endpoints in one geography away from a second geography, unless the destination lies in that second geography."
- "Avoid routing networking traffic originating from a given set of endpoints (or associated with a given customer) through a particular vendor's equipment, even if this occurs at the expense of reduced service levels."
- "Maximize network utilization even if it means trading off service levels (such as latency, loss), unless service levels have deteriorated 20% or more from their historic mean."
- "VPN service must have path protection at all times for all paths."
- "Generate in-situ OAM data and network telemetry across for later offline analysis whenever significant fluctuations in latency across a path are observed."

# Intent concept clarifications

- Intent is outcome-oriented
  - “What outcomes does a network provider expect”, not “how those outcomes are achieved”
  - Intent system, not user, responsible for translating desired outcomes into courses of actions, policies, algorithms.
- On the relationship to Policy
  - “Intent-based” relates to “policy-based” like “AI and machine-learning” relate to “Expert Systems”
    - Intent defined by desired outcomes, not how to achieve them (one way of which might be means of rules)
    - Policy defined by rules (e.g. Events/Conditions/Actions) and what to do under which circumstance

# Principles

Starter set of principles defined, subject to further discussion:

- **Single source and single version of truth (SSoT/SVoT)**  
(Important to capture drift, ensure system convergence)
- **One touch but not one shot**  
(It may take iterations and interactions to arrive at desired intent, resolve ambiguities, avoid unintended consequences)
- **Autonomy and oversight**  
(System conducts tasks on its own; users are given the necessary tools to retain an understanding of current state and what is happening)
- **Learning**  
(System is able to assess effectiveness of its own actions and improve in order to optimize outcomes and adapt to dynamic conditions and changing context)
- **Explainability**  
(System is able explain its actions and reason about their effectiveness)
- **Abstraction**  
(Users do not need to be concerned with how intent is mapped into lower-level artefacts)