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
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)