

# What is intent-based networking (IBN)?

## Intent based networking system

Intent-based networking is networking technology that configures the IT infrastructure based on a business intent — a service request from the network administrator without any human intervention. It continuously provides critical network insights and constantly tweaks the hardware configuration to ensure the intent is met. It takes networking from a device-centric to a business-centric model.

Intent-based networking (IBN) leverages the analytics of machine learning (ML) with the power of IT automation to enhance the agility of the IT infrastructure in every possible aspect. In simple terms, **IBNS is a self-driving networking system**.

## How does an intent based networking software (IBNS) work?

An IBNS works on four basic principles.

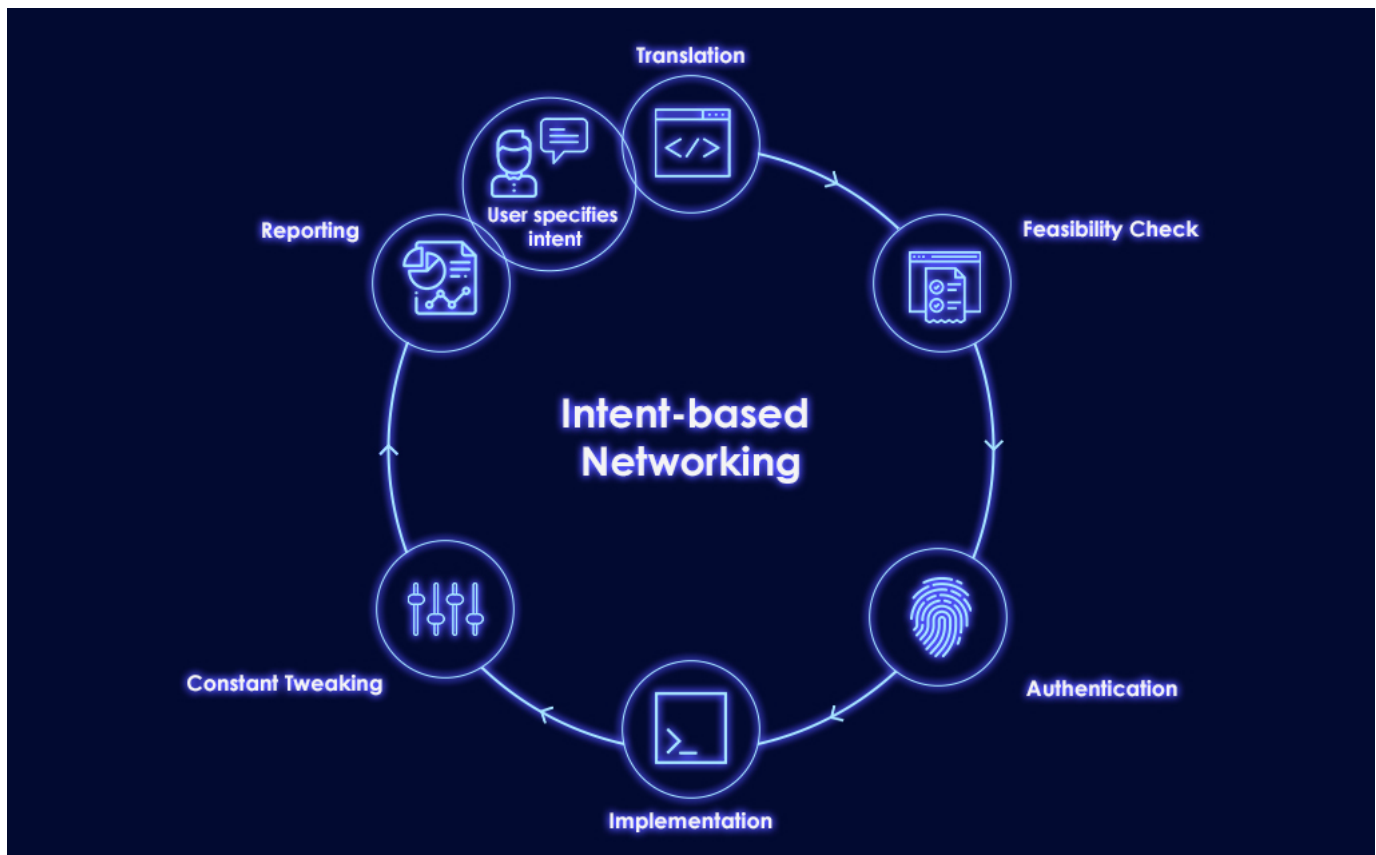
1. **Translation of intent:** The business intent is translated into a policy (configuration change) that is an actionable service request.
2. **Implementation of policies:** The network administrator approves the new policy and it is implemented by software.
3. **Continuous data analysis:** The IBNS audits the network infrastructure for faults and performance.
4. **Assurance by real-time reporting:** The IBNS reports on the performance with critical network insights.

Let's consider an educational institution that offers off-campus learning courses to its students. The institute broadcasts a lecture for a specific course from 10am to 11:30am on the third Wednesday of every month. For the lecture to broadcast without intermittent issues, the organization must do two things during the lecture:

1. Allocate more bandwidth to the broadcasting hardware
2. Control bandwidth consumption by other endpoints

The IBNS breaks down the service request into actionable tasks:

1. **Business Intent:** Smooth broadcast of the lecture
2. **Translation:** Broadcasting hardware resources are identified. Script is coded to configure networking hardware to control bandwidth during the specified time.
3. **Feasibility Check:** The IBNS runs a complete check on a simulated environment.
4. **Policy Authentication:** The network administrator approves the configuration changes.
5. **Policy Implementation:** Configurations are pushed to networking hardware for controlling bandwidth during the specified time.
6. **Assurance:** The IBNS constantly audits for performance hogs and tweaks the configurations accordingly.
7. **Reporting:** The IBNS reports on the network status, performance, and glitches to the network administrator in timely manner.



The IBNS comes in handy for the network administrators when dozens of service requests have to be handled. The above mentioned example covers only some of the capabilities of the IBNS.

## How is an intent based networking solution different from a software-defined networking solution?

### IBN vs SDN:

The idea behind intent based network management has been around for years just as SDN. Though the two technologies graze one another in numerous aspects, they differ by their fundamental ideas.

### Software-defined network (SDN):

A software-defined network (SDN) is an IT infrastructure in which all hardware is configured by a central software console. An SDN aims at controlling the IT infrastructure with the help of software applications but an SDN operates on a device-centric model such as exporting flow data from a specific interface.

### Intent-based networking (IBN):

The goal of IBN is to create an autonomous network. IBN needs only the business intent. So it can frame and enforce policies, configure the network accordingly, and constantly check and tweak the network performance. Leveraging the cognition of machine learning with network orchestration is IBN's unique selling proposition (USP). Above all, IBN operates on a business-centric model.

SDN primarily works on how a device should operate. On the other hand, IBN works on how to achieve the service request — intent by automatically identifying resources and configuring them.

### What are the challenges with the IBNS?

Since the IBNS is not a proven technology, there are a lot of challenges that might be encountered when employing it. Some of them are:

- **Visibility:** The most important factor to consider is visibility into the network. If software fails to deliver as promised, identifying the network hogs won't be a picnic, since the policies are enforced by the software itself.
- **Reliability:** Though the IBNS enforces policies after validation from network administrators, there will always be the concern of reliability. What if the policies do not yield peak performance for the specified intent? The process has to be started all over. Now imagine starting over with an IT infrastructure containing a thousand devices...scary, right?

### Why is intent based networking (IBN) needed?

The IBNS has a lot to offer organizations, including:

- Massive scalability
- Improved security
- Maximum flexibility
- Multi-vendor hardware management

Managing hardware in the thousands with network automation can drastically reduce the mean time to repair (MTTR). It makes the IT infrastructures flexible, helping IT administrators handle complex service requests with fewer resources.

The IBNS saves time and resources for businesses, which are important factors for all enterprise-grade organizations to consider.

## How can you make your IT infrastructure more agile?

The IBNS is not mainstream as of 2020. It is still in its early stages of development. However, you can make your IT infrastructure more agile starting today with ManageEngine OpManager.

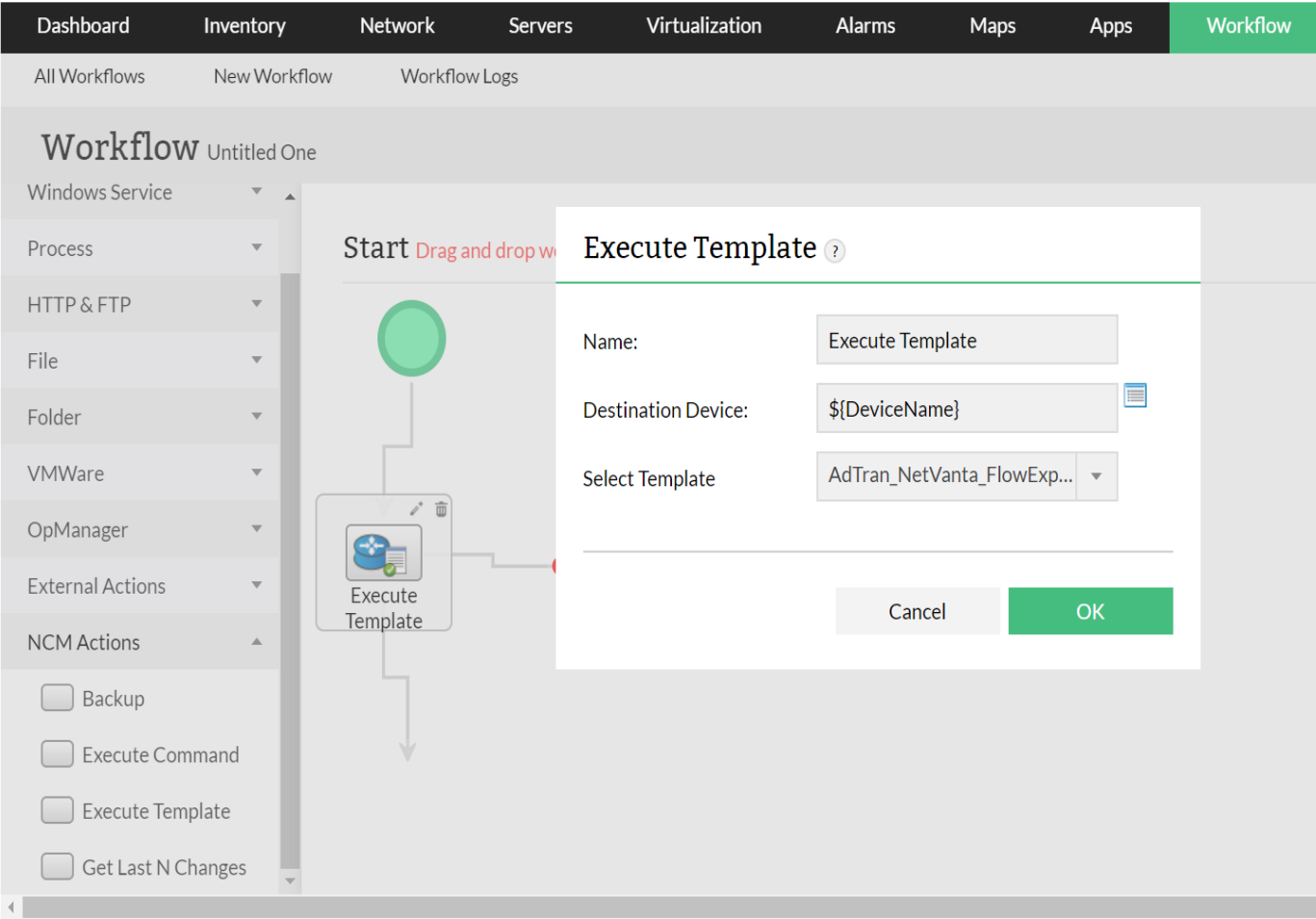
ManageEngine OpManager is a comprehensive network monitoring system that proactively monitors servers, switches, routers, firewalls, and anything that has an IP and is connected to the network. Gain 360° network visibility with complete

- Physical & Virtual Devices Monitoring
- Network Traffic Analysis
- Network Configuration Management
- Firewall Log Analysis & Management
- Switch Port & IP Address Management

OpManager's code-free [workflow automation](#) feature helps in efficiently managing your IT infrastructure, making it more flexible to service requests. With the Network Configuration Manager add-on, the above discussed example can be executed in OpManager with a drag-and-drop workflow builder.

- The Network Configuration Manager configlet (configuration template) is scheduled at 9:45am on the third Wednesday of every month.
- The configlets will modify the network devices and broadcast hardware configurations accordingly.
- Similarly, another configlet (this time, reverting the above changes) is scheduled at 11:45am on the third Wednesday of every month.
- SMS and Slack notifications can be added to the workflow to confirm the configlets are pushed in a timely manner.

•



**Workflow**

DashboardInventoryNetworkServersVirtualizationAlarmsMapsAppsWorkflow

All WorkflowsNew WorkflowWorkflow Logs

WorkflowUntitled One

☐Execute another Workflow

☐Execute Linux Script

☐Execute Windows Script

☐Log a Ticket (Remedy)

☐Log a Ticket (SDP)

☐Send Email

☐Send Popup Message

☐Send SMS

☐Send Slack Message

NCM Actions

Start

Drag and drop

Execute Template

Send Slack Message

Name:

Send Slack Message

Send To

☒Channel☐Member

Channel:

Message Content

Title

Description

SMS

DashboardInventoryNetworkServersVirtualizationAlarmsMapsAppsWorkflow

All WorkflowsNew WorkflowWorkflow Logs

WorkflowUntitled One

☐Execute another Workflow

☐Execute Linux Script

☐Execute Windows Script

☐Log a Ticket (Remedy)

☐Log a Ticket (SDP)

☐Send Email

☐Send Popup Message

☐Send SMS

☐Send Slack Message

NCM Actions

Start

Drag and drop workflow tasks from the left pane

Execute Template

Send SMS

Associate workflow?

Device Selection

Configure Trigger

Once

Daily

Weekly

Monthly

Yearly

Execute Monthly

☐On the Date

☒Daywise : Every

Sunday

Monday

Thursday

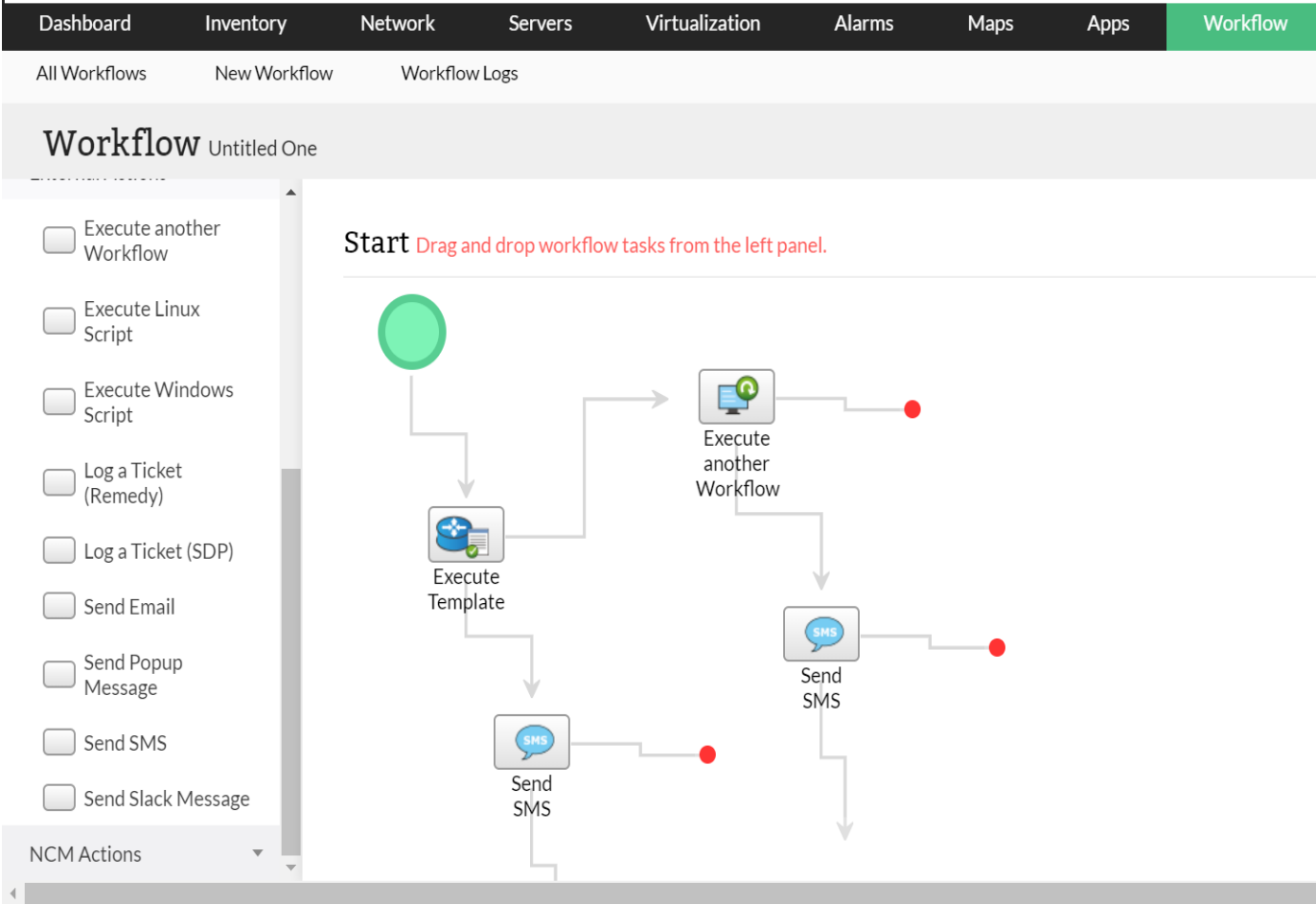
Friday

Execute At

18

Hour

Schedule



**Workflow1**

PrevNext

You can push and revert configurations without any user intervention on a regular basis with ManageEngine OpManager!

[Email](#) and [#slack](#) notifications can both be added.

You can [try OpManager completely free with a 30 day trial](#) and manage your IT infrastructure efficiently starting today!