

NetBeez

Architecture, Features, and Technical Specifications

The Architecture



The NetBeez architecture consists of a set of distributed agents, the Beez, and a central server, the BeezKeeper. The agents are completely managed by a server, and they would not function independently.

The agents are deployed on a local, cloud, or remote network, offering real-time monitoring and analytics.

The server is the central brain of the solution as it handles the following tasks:

- Control the remote monitoring agents
- Receive the real-time data sent by the agents
- Process the data for real-time display on the dashboard and alerting
- Stores the data for historical retention and analysis
- Provides the dashboard to the user
- Manages the software security updates to itself and the agents

Server

Each NetBeez deployment requires a NetBeez server, which can be either hosted on-prem or in the cloud. Cloud deployments can be self hosted or provided by NetBeez. [Request a quote](#) if you want to learn more about it.

Server Minimum Requirements

- RAM: 8 GB
- CPU: 2 Cores
- NIC: 1000 Mbps
- Disk Drive: 100 GB

Deployment Options

The NetBeez server runs on Linux Ubuntu, and can be installed on-premises or in the cloud.

- Linux Ubuntu 20.04 LTS
- Amazon Web Service AMI

Agent-Server Communication

Agents and server communicate across an SSL connection enforced by 2048 bit certificates. The agents initiate the connection with the server, by default on port TCP:20019. For more information about configuring firewalls, please consult the [online documentation](#).

Network Agents: Hardware

The network agents are hardware, software, and virtual appliances. The hardware-based sensors are small appliances that are deployed at headquarters, branch offices, and home environments.

NetBeez Wired Ethernet

- **CPU:** 1.91 GHz quad-core (Intel Atom)
- **RAM:** 2 GB
- **Disk Drive:** 8 GB
- **Ethernet NIC:** 10/100/1000 Mbps (RJ-45)
- **Power Consumption:** 4W to 8W AC 110V and 220V
- **Power Supply:** External PSU or PoE
- **Dimensions (WxDxH):** 2.4" x 3.5" x 1.2"

NetBeez WiFi 802.11ac (WiFi 5)

- **CPU:** 1.2 GHz quad-core (ARMv8)
- **RAM:** 1 GB
- **Disk Drive:** 8 GB
- **Ethernet NIC:** 10/100 Mbps (RJ-45)
- **Power Consumption:** 3W AC 110V and 220V
- **Power Supply:** External PSU or PoE
- **Dimensions (WxDxH):** 7.4" x 5.4" x 1.25"
- **Wi-Fi Card:** 802.11 AC (Wi-Fi 5)

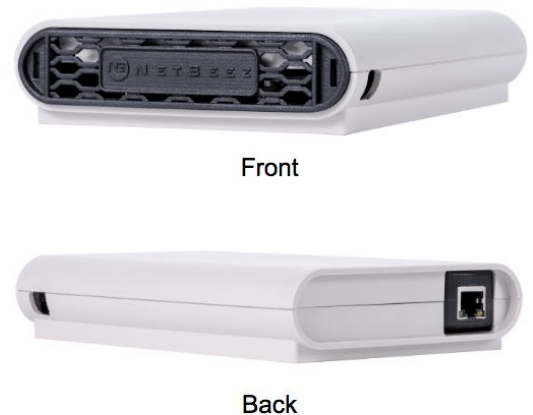


Figure 1. NetBeez WiFi 5 sensor.

Network Agents: Software

NetBeez Software

Linux package for Ubuntu or Debian Linux distributions (`apt-get install netbeez-agent`).

NetBeez Docker

Software container for Docker systems (`docker pull netbeez/nb-agent`).

For more formats (AMI, OVA, etc.), please go to the [documentation page](#).

Remote Worker Agents

The remote worker agents are software clients that run on end-user desktops and laptops to capture the end-user experience. The software can also be installed via Intune and Microsoft SCCM.

Windows Client

Support for Windows 7, Windows 10, and Windows Server versions. Lightweight software client, whose minimal requirements are:

- **CPU:** Dual Core Processor 2.0GHz (process generally consumes 1% of CPU)
- **RAM:** 4GB (process generally consumes 50MB of RAM)
- **Disk space:** 200 MB
- **Format:** [MSI installer](#)

Mac OS Client

Support for macOS 10.12 (Sierra) and higher, including 11.0 (Big Sur). Lightweight software client, whose minimal requirements are:

- **CPU:** Dual Core Processor 2.0GHz (process generally consumes 1% of CPU)
- **RAM:** 4GB (process generally consumes 50MB of RAM)
- **Disk space:** 200 MB
- **Formats:** [DMG package](#)

NetBeez Agents Performance Tests

The NetBeez agents support two types of performance monitoring tests: real-time and scheduled tests:

1. The real-time tests are called so because they continuously run based on an interval specified in seconds; real-time tests include ping, DNS, HTTP, traceroute, and path analysis.
2. The scheduled tests run less frequently and according to a user-defined schedule (similar to a cron job) and include iperf, network speed, VoIP.

Dashboard users can also run both real-time and scheduled tests ad-hoc to troubleshoot network or application issues on the spot.

Real-Time Tests

Real-time tests can run both on wired and wireless interfaces.

PING	TCP-Based Ping	DNS	HTTPS
<ul style="list-style-type: none">• Availability• Packet Loss• Round-Trip Time• DSCP marking• MTU and DF setting	<ul style="list-style-type: none">• Availability• TCP response time• Failure rate• DSCP marking• MTU and DF setting	<ul style="list-style-type: none">• Service availability• DNS lookup time• Failure rate	<ul style="list-style-type: none">• Service availability• HTTPS GET time• Failure rate

Traceroute	Path Analysis
<ul style="list-style-type: none">• Number of hops to destination• TCP/UDP/ICMP protocol• Hop-by-Hop RTT• Path-MTU discovery• DSCP marking• Destination TCP port	<ul style="list-style-type: none">• Number of hops to destination• UDP protocol• Hop-by-Hop Geo Location, ASN, RTT min/max/average• ECMP discovery

Scheduled Tests

Scheduled tests only run on the wireless interface.

Iperf	Network Speed	VoIP
<ul style="list-style-type: none">• TCP/UDP throughput• Custom TCP/IP ports• DSCP marking• Jitter (UDP)• Packet Loss (UDP)• Multicast (UDP)• Retransmissions (TCP)• Parallel Streams (TCP)• Reverse mode	<ul style="list-style-type: none">• Download speed• Upload speed• Latency	<ul style="list-style-type: none">• Mean Opinion Score• Packet Loss• Jitter• Codecs supported: G711, G729, G723, G726, G728

NetBeez Agents WiFi Metrics

The NetBeez agents report the following metrics in real-time and historical mode:

- Sent and received bits per second
- Signal strength and link quality
- Associated channel and BSSID number
- Bit rate established with the access point

NetBeez WiFi hardware sensors can also run packet capture and connection timing analysis.

