AKiPS™
Network Monitoring Software

Technical Specifications

Feature Summary

General
- Installs as a VM appliance
- Installs in 10 minutes
- Upgrades in 2 minutes
- FreeBSD 10.x (latest security release)

Ping
- IPv4 and IPv6
- Micro second RTT resolution
- 15 second polling interval

SNMP
- 20 million objects per min
- 60 second polling interval
- 3 years at 1min resolution
- SNMPv1/v2/v3
- IPv4 and IPv6
- MD5 and SHA
- DES, 3DES, AES128/192/256
- Adaptive polling algorithms
- Direct database insertion

NetFlow
- IPv4 and IPv6
- Netflow v5/v9, Jflow, IPFix
- UDP (unreliable Netflow)
- SCTP (reliable Netflow)
- Fanout/forwarding

Syslog
- IPv4 and IPv6
- Fanout/forwarding

SNMP Traps
- IPv4 and IPv6
- Full vendor MIB decoding
- Fanout/forwarding

Switch Port Mapper
- MAC location
- IPv4 and IPv6 mapping
- Vendor ID
- 60 days of history
- VLAN auto grouping

Dashboards
- Events
- Netflow
- Single Device
- Single Interface

Alerting
- Status
- Threshold
- Syslog
- SNMP Traps

Graphing
- Interactive SVG
- Zoom In/Out, Prev/Next
- Smoothing and Averaging
- Aggregate Interface Graphs
- Save as high res PDF or legacy PNG bitmap
- Sub second generation
- Normalised X and Y scales

Backup
- Automated
- Incremental
- 80 minute interval
- SSH transport

Supported Vendors
- A10 Networks ®
- Alcatel ®
- AKCP ®
- APC ®
- Arista Networks ®
- Aerohive ®
- Aruba Networks ®
- Avaya ®
- BlueCat ®
- Brocade/Foundry ®
- Cabletron Systems ®
- Check Point ®
- Ciena ®
- Cisco ®
- Citrix ®
- Dell ®
- Eaton ®
- Enterasys Networks ®
- Extreme Networks ®
- Fortinet ®
- F5 Networks ®
- Geist ®
- HP ®
- H3C Technologies ®
- Infoblox ®
- Ingrasys ®
- Ixia ®
- Juniper Networks ®
- Liebert ®
- Meru ®
- Palo Alto Networks ®
- Radware ®
- Riverbed ®
- Server Technology ®
- Tripp Lite ®
- Ubiquiti Networks ®
- VMware ®

Feature Details

Auto Discover

- IPv4/IPv6 Ping scan using user defined ranges
- SNMP v1, v2 and v3 discovery
- Duplicate device detection using:
  - sysName
  - SNMPv3 engine ID
  - Device MAC table
- Device filtering by:
  - sysName
  - Vendor
  - Model
  - Location
- Vendor specific MIB Object configuration
- Daily scheduled discovery or rewalk
- Discover a single device or entire network
- User defined auto grouping of:
  - Devices
  - Interfaces
  - Vendor technologies
- Post discovery site specific configuration scripting

Ping Poller

- High performance monolithic architecture
- IPv4 and IPv6
- Response time measured in micro seconds
- 15 second ping interval for every device
- Rate limited in 100ms window intervals
- Ping and SNMP requests interleaved for traffic mix
- 1 minute RTT averages
- 1 minute Lost and Duplicate totals
- 3 years storage at 1 minute resolution
- 10,000+ pings per second

SNMP Poller

- High performance monolithic architecture
- Direct database insertion technology
- Dual mode sync and async algorithm
- Adaptive polling for idle counters
- Adaptive polling for static gauges
- Polling paused for non-active interfaces
- Packet window tuning per device
- Immune to network latency issues
- IPv4 and IPv6
- SNMPv1, v2 and v3
- SNMPv3 Authentication modes:
  - MD5
  - SHA
- SNMPv3 Encryption modes:
  - DES
  - 3DES
  - AES128
  - AES192
  - AES256
- Hardware encryption offloading
- 60 second polling interval for all MIB objects
- 10,000+ authenticated/encrypted pkts/sec
- 20 million+ MIB Objects per minute
- Trap support for SNMPv2 and SNMPv3
- 3100+ compiled MIBs and 350,000+ objects
- Native MIB decoding support for:
  - TimeTicks
  - MAC addresses
  - DisplayString
  - DateAndTime
  - Enumerations
  - BITS
  - IPv6 address decoding
  - Vendor specific OIDs

Netflow

- Scales to over 1 million flows per second
- Netflow versions
  - v5, v9
  - IPFIX
  - jFlow
  - Netstream
- SCTP (reliable) transport
- UDP (unreliable) transport
- Flow fanout to 10 destinations
- Configurable dashboard
- IPv4 and IPv6 reporting
- Geolocation country identifier
- Interactive SVG bar and time-series graphs
- Top talkers
- Top listeners
- Top conversations
- Top protocols
- Top flows
- Total counts per exporter
- Number of conversations per src or dst IP
- Address and protocol filtering
- Unknown protocols report
- User defined TCP/UDP protocol definitions
- SNMP discovered flow exporters

Unused Interfaces

- Time ranges 1, 2, 5, 7, 14, 30, 60, 90 and 180 days
- Report filtering by:
  - Group
  - Profile
  - Device regex
  - Interface type
  - Summary or each device (free/total)
- Detailed breakdown showing:
  - Device name
  - Interface name
  - Used / Free
  - Current interface state
  - Last time interface changed state

Alerting

- Alerting types:
  - Status (eg. Ping, ifOperStatus, PSU status)
  - Thresholds (eg. utilisation, errors, broadcasts)
  - Syslog
  - SNMP Traps

Switch Port Mapper

- VLAN auto grouping
- MAC location history for the last 60 days
- MAC mappings for:
  - Switch Port
  - Vendor
  - IPv4
  - IPv6
- Search by:
  - MAC
  - IPv4
  - IPv6

Time-series Database

- High performance monolithic architecture
- Direct data insertion removes triple handling of data
- Scales to 10 million+ time-series sensors
- 3 years storage at 1 min resolution for every object
- No data rollup
- 6 stage loss-less compression algorithm
- SHA-1 digest on every data block for data integrity
- Data interpolation and normalisation
- High speed atomic locking for data consistency

Event Database

- Enumerated changes (eg. ifOperStatus, PSU status)
- BITS changes
- TimeTick resets (eg. sysUpTime)
- Threshold exceeds (eg. %util, rtt)
- Critical event tagging
- Compresses historical events each day
- Data storage up to 3 years
- Time-series graphing of events
- Event filtering by group or user profile

Graphing

- Interactive
- Scalable Vector Graphics
- Zoom in/out controls
- Previous/next controls
- Smoothing and Averaging
- Aggregate graphs
- Save as PDF or legacy PNG bitmap
- Sub second generation
- Normalised X and Y scales
- Multiple graph formats:
  - Daily
  - Weekly
  - Monthly Calendar
  - Yearly
  - Horizontal bar
  - Availability/Outages
  - Embedded strip

Service Forwarding / Fanout

- Forwards original packet to 10 destinations
- Syslog (UDP port 514)
- SNMP Traps (UDP port 162)
- Netflow (user specified UDP port)

Grouping

- Rules based auto grouping
- Manual grouping via GUI

Availability Reporting

- Availability statistics
  - IPv4 Ping state
  - IPv6 Ping state
  - SNMP state
  - Interface state
- User defined targets and time ranges
- Outage graphing
- Drill down outage report per device

User Interface

- Modern browser interface
- Interactive scalable vector graphics
- Navigate through the data instead of complex controls
- Tabular reports:
  - Sortable columns
  - Selectable Top N
  - Strip graphs
  - Drilldown to dashboards

Site Scripting

- Post discover config scripting
- Post auto grouping config scripting
- Scheduled auto scripting intervals:
  - 1 minute
  - 5 minutes
  - 1 hour
  - 1 day

Hardware Requirements

Smallish • 5,000 interfaces • 10,000 flows/sec	• Virtual Machine • 1 CPU core • 4 GB memory • 100 GB disk
Medium • 50,000 interfaces • 100,000 flows/sec	• Virtual Machine • 2+ CPU cores • 8 GB memory • 200 GB disk
Largish • 500,000 interfaces • 500,000 flows/sec	• Virtual Machine • 6+ CPU cores • 32 GB memory • 1 TB disk
Humongous! • 1 million interfaces • 1 million flows/sec	• 8+ CPU cores • 64 GB • 2 TB disk

Supported MIB Objects

System
- Name
- Contact
- Description
- Location
- ObjectID
- Uptime

IPv4 / IPv6 Ping
- RTT (micro seconds)
- Lost responses
- Duplicate responses

BGP4
- Identifier
- AS Number
- AS Name
- Local IP Address
- Remote IP Address
- BGP Admin State
- BGP Peer Admin/Oper State
- Last Change
- Updates
- Messages

VRRP
- Virtual MAC
- Master IP Address
- Primary IP address
- State
- Last State Change

Interfaces
- Name
- Speed
- Description
- Alias
- Type
- Operational State
- Octets
- Utilisation
- Bits Per Second
- Packets
- Errors
- Discards
- Broadcasts
- Multicasts

ADSL
- Tx/Rx Line Rate
- Tx/Rx Signal to Noise Ratio
- Tx/Rx Attenuation
- Tx/Rx Power

Host Resources
- Uptime
- CPU Load
- Memory Size / Used / Free
- Disk Size / Used / Free
- Number of Users
- Number of Processes

UPS MIB
- Input Voltage
- Input Current
- Output Voltage
- Output Current
- Output Power
- Output Percent Load
- Output Source
- Battery Voltage
- Battery Current
- Battery Status
- Seconds on battery
- Battery Temperature
- Estimated time remaining
- Estimated charge remaining

A10 Networks ®
- CPU
- Memory
- Temperature
- Fan
- Power Supply

Sessions
- Connections Active
- Connections Freed
- TCP Sessions
- TCP Half Open Sessions
- UDP Sessions
- IP Sessions (non TCP/UDP)
- Non IP sessions
- Reverse NAT TCP Sessions
- Reverse NAT UDP Sessions

Alcatel ®
- CPU Load
- Memory Usage
- Temperature

AKCP ®
- Temperature Sensors
- Humidity Sensors

APC ®
Automatic Transfer Switch
- Model Number
- Serial Number
- Firmware Revision
- Output Phase Index
- Output Voltage
- Output Current
- Selected Source
- Over Current State
- Redundancy State

Environment Monitoring
- Temperature
- Humidity
- Alarm Status

UPS
- Input Line Voltage
- Output Line Voltage
- Output Line Current
- Phase Input Voltage
- Phase Input Current
- Phase Output Voltage
- Phase Output Current
- Battery Status
- Battery Replacement Indicator
- Battery Pack Count
- Battery Temperature
- Battery Capacity
- Battery Voltage
- Battery Current

Arista Networks ®
- Processor Load
- Memory Size
- Temperature

Aruba Networks ®
- Processor Description
- Processor Load
- Memory Size
- Memory Used
- Memory Utilisation
- Fan Status
- Power Supply Status

Controller
- Number of Stations
- Number of Access Points

Controller ESSID
- Number of Stations
- Number of Access Points
- Receive Rate
- Received Packets
- Received Packets Dropped
- Received Packets Retried
- Transmit Rate
- Transmitted Packets
- Transmitted Packets Dropped
- Transmitted Packets Retried
- Transmitted Packets in Error
- Wired Received Packets
- Wired Received Bytes
- Wired Transmitted Packets

Access Point
- Radio Name
- Radio Type
- Radio Associated Clients
- Radio Monitored BSSIDs
- AP Number of Stations
- AP Packets
- AP Bytes
- AP Noise
- AP Coverage Index
- AP Interference Index
- AP Number of APs
- AP Tx Utilisation
- AP Rx Utilisation

- AP Total Utilisation

Radius Server
- Success
- Failure
- Count
- Policy Eval Latency
- Request Latency

Radius Authentication
- Source Name
- Success
- Failure
- Count
- Latency

TACACS Server
- Success
- Failure
- Count
- Latency

TACACS Authentication
- Success
- Failure
- Count
- Latency

Web Authentication
- Protocol Name
- Success
- Failure
- Count
- Latency

Avaya ®
- Processor Load
- Memory Size
- Memory Used
- Memory Utilisation
- Temperature

BlueCat ®
DHCP Pool Stats
- Start IP
- End IP
- Pool Size
- Pool Used
- Pool Util

DHCP Subnet Stats
- Subnet IP
- Netmask
- Size
- Used
- Free
- Util %

Brocade (Foundry) ®
- CPU Load
- Memory Utilisation
- Temperature
- Fan Status
- Power Supply Status

Cabletron Systems ®
- Power Supply Status
- Fan Status

Check Point ®
- Chassis Temperature
- Fan Status
- Power Supply Status
- Processor Utilisation
- Firewall Connections
- TCP Connections
- ICMP Connections
- UDP Connections
- Accepted Packets
- Rejected Packets
- Dropped Packets
- Logged Packets

Ciena ®
- CPU
- Memory
- Chassis Temperature
- Power Suppy Status
- Fan Status

Laser Interfaces
- Transmit power
- Receive power
- Temperature

Cisco ®
- CPU Load
- Memory Used
- Memory Free
- Memory Total
- Memory Utilisation
- Temperature
- Temperature Status
- Power Supply Status
- Power Supply Voltages
- Netflow Exporter Status
- Switch Module Status
- IKE Active Tunnels
- IKE Total Tunnels
- SSL Total Sessions
- SSL Active Sessions
- SSL VPN Client Total Sessions
- SSL VPN Client Active Sessions

ASR QuantumFlow Processor
- CPU Load
- Total Pkts/sec
- Priority Pkts/sec
- Non Priority Pkts/sec
- Total Bit/sec
- Priority Bit/sec
- Non Priority Bit/sec

HSRP Status
- Router
- Virtual IP
- Active IP
- Standby IP
- Current State
- Time of last change

IPSLA RTT / Jitter
- Index
- Owner
- Tag
- Type
- Protocol
- Target IP
- Current Status
- NTP Status
- RTT in microseconds
- Jitter in microseconds

Netflow Stats
- Flows
- Packets
- Failed
- Dropped

NBAR
- Protocol
- Bytes
- Packets

Switch Stack
- Stack Model
- Stack State
- Stack Standby State

StackWise
- Switch Role (Master/Member)
- Switch State

TCAM
- Pool Name
- Total
- Used
- Utilisation

Voice Calls
- Total Active Connections
- Incoming Calls
- Outgoing Calls

Wide Area Application Services
- *Application Optimizer*
  - Name
  - Config Status
  - License Status
  - Operational Status
  - Handled Connections
  - Optimized Connections
  - Handed Off Connections
  - Dropped Connections
  - Active Optimized Connections
  - Pending Connections
  - Load Status
  - Bandwidth Optimized
- *Application Statistics*
  - Name
  - Original Bytes
  - Optimized Bytes
  - Passed Through Bytes
- *Policy Map Statistics*
  - Name
  - Description

  - Total Connections
  - Total Bytes
  - Passed Through Connections
  - Passed Through Bytes
- *Class Map Statistics*
  - Name
  - Description
  - Total Connections
  - Total Bytes
  - Passed Through Connections
  - Passed Through Bytes

Citrix NetScaler ®

- CPU
- Memory

Virtual Server

- Name
- IP Address
- Port
- Type
- State
- Entity Type
- Current client connections
- Current server connections
- Number of requests
- Number of responses
- Tx/Rx Bytes
- Tx/Rx Packets

TCP Connections

- Current client connections
- Current server connections
- Opened client connections
- Opened server connections
- Tx/Rx Bytes
- Tx/Rx Packets

Service Group Members

- Status
- Current client connections
- Tx/Rx Bytes
- Tx/Rx Packets
- Number of requests
- Number of responses

Dell ®*Chassis*

- Fan State
- Power Supply State
- Power Supply Source

EqualLogic Controller

- Controller Name
- Model
- Software Version
- Serial Number
- Battery Status
- NVRAM Battery Status

EqualLogic Disk Config

- Model
- Serial Number
- ID Number
- Slot Number
- Type (SAS/SATA)
- RPM
- Size
- Status
- Errors

EqualLogic Disk Stats

- Serial Number
- Transfers
- Failed Transfers
- Read/Write Bytes
- Operations Pending
- Queue Depth
- Disk Errors

EqualLogic Member Config

- Name
- Status
- Health
- Raid Status
- Lost Blocks
- Spare Disks
- Model
- Serial Number

EqualLogic Member Storage

- Name
- Util
- Used
- Free
- Total

EqualLogic Member Stats

- Name
- Connections
- Transmit Data
- Receive Data
- Read Operations/sec
- Write Operations/sec
- Read/Write Latency

EqualLogic Pool Stats

- Pool Name
- Storage Util
- Storage Used
- Storage Free
- Storage Total
- Volumes In Use
- Volumes Online
- Volumes Total
- Connections

EqualLogic Temperature

- Sensor Name
- Status
- Temperature

Eaton ®

- Model
- Software Version
- Input Source
- Output Source
- Output Load
- Battery Voltage
- Battery Current
- Battery Capacity
- Battery Status
- Phase Input Voltage
- Phase Input Current
- Phase Input Power
- Phase Output Voltage
- Phase Output Current
- Phase Output Power
- Temperature
- Humidity

Enterasys Networks ®

- CPU Load
- Memory
- Temperature
- Storage (flash)
- Flow Limiting (Security/DOS)
- Authorised Users Count

F5 Networks ®

- CPU Load
- Memory
- Temperature
- Fan Status
- Power Supply

Global Client Stats

- Current connections
- Total connections
- Total packets
- Total bytes

Global Server Stats

- Current connections
- Total connections
- Total packets
- Total bytes

Virtual Client Stats

- Connection Name
- Current connections
- Total connections
- Total packets
- Total bytes

Pool Stats

- Connection Name
- Current connections
- Total connections
- Total packets
- Total bytes

Pool Member Stats

- Connection Name
- Current connections
- Total connections
- Total packets
- Total bytes

Fortinet ®

- CPU
- Memory
- Disk Capacity
- Active Sessions
- SSL State
- VPN Tunnels

Geist ®
- Temperature
- Humidity
- Dew Point

HP ®
- ProCurve CPU
- ProCurve Memory
- Temperature

H3C Technologies ®
- CPU
- Memory

Infoblox ®
DHCP Server
- Discovers
- Requests
- Releases
- Offers
- ACKs
- NACKs
- Declines
- Informs
- Others

DHCP Subnets
- IP Network
- Netmask
- Used

DNS
- Query Rate

Ixia ®
- Port Segment Stats
- Temperature
- Power Supply status

Juniper Networks ®
- CPU Load
- Memory
- Temperature
- Fan Status
- Fiber Laser dB/temperature

Firewall
- Connections
- Denied packets
- TCP SYN Attack
- TCP Sequence
- Illegal packets
- No route

Firewall Filters
- Filter
- Name
- Type
- Packets
- Bytes

SPU
- Node
- CPU
- Memory
- Current Sessions
- Current CP Sessions

VPN Tunnels
- State
- Packets
- Bytes / BPS

Juniper Networks NetScreen ®
- CPU
- Memory
- Temperature

Firewall
- Current Sessions
- Failed Sessions

VPN
- Latency
- Bits/sec
- Bytes
- Packets

Liebert ®
- Temperature
- Battery Test Result
- Battery Charge Status
- Battery Time Remaining
- Battery Capacity

Palo Alto Networks ®
- CPU
- Memory
- Temperature
- Global session utilisation
- Global active sessions
- Global active TCP sessions
- Global active UDP sessions
- Global active ICMP sessions
- Virtual system session utilisation
- Virtual system active sessions

Radware ®
- CPU
- Memory
- Fan status
- PSU status
- Temperature status

Riverbed ®
- CPU
- Memory
- Temperature
- System Health
- Service Status

Tripp Lite ®
- Temperature
- Temperature Alarm
- Humidity
- Humidity Alarm
- Contact Name
- Contact Status

Ubiquiti Networks ®
AirMax
- SSID
- AP MAC
- Signal
- RSSI
- CCQ
- Noise Floor
- Tx Rate
- Rx Rate
- WDS State
- Repeater State
- Station Count

Ethernet
- Bytes
- Packets
- Broadcasts
- Multicasts

GPS
- Latitude
- Longitude
- Altitude
- Visible Satellites
- Tracked Satellites

Radio Config
- Software Version
- Admin Status
- Operation Status
- Operational Mode
- Duplex
- Radio Temperature
- Radio Frequency
- Radio Speed
- Local Tx Power
- Local Tx Modulation
- Remote Rx Power
- Remote Tx Modulation
- Remote MAC Address
- Remote IP Address
- Link Name

Radio Statistics
- Bytes
- Packets
- Local Rx Power
- Remote Rx Power

VMware ®
- CPU
- Memory
- Storage

Host
- Product
- Version
- Update number
- Patch number
- Build number