

# SYSTEM OVERVIEW

Nx Witness is an open, extensible IP video management system with Cloud, Desktop, Mobile, and Server applications.





## CLOUD

A cloud-based service that enables simple, centralized remote access and insight into any Nx Witness system.

## DESKTOP

A rich media player with a flexible GRID interface designed for connecting to and managing an Nx Witness system.




## SERVER

A powerful, lightweight media server designed to discover, add, and manage system devices and resources.

## MOBILE

A mobile application for iOS and Android devices designed for remote viewing and control of resources.

### BROWSERS

	Google Chrome
	Mozilla Firefox
	Microsoft Edge



### OPERATING SYSTEMS

	Windows
	Ubuntu Linux
	Mac OS

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	Windows
	Ubuntu Linux
	ARM / Debian Linux

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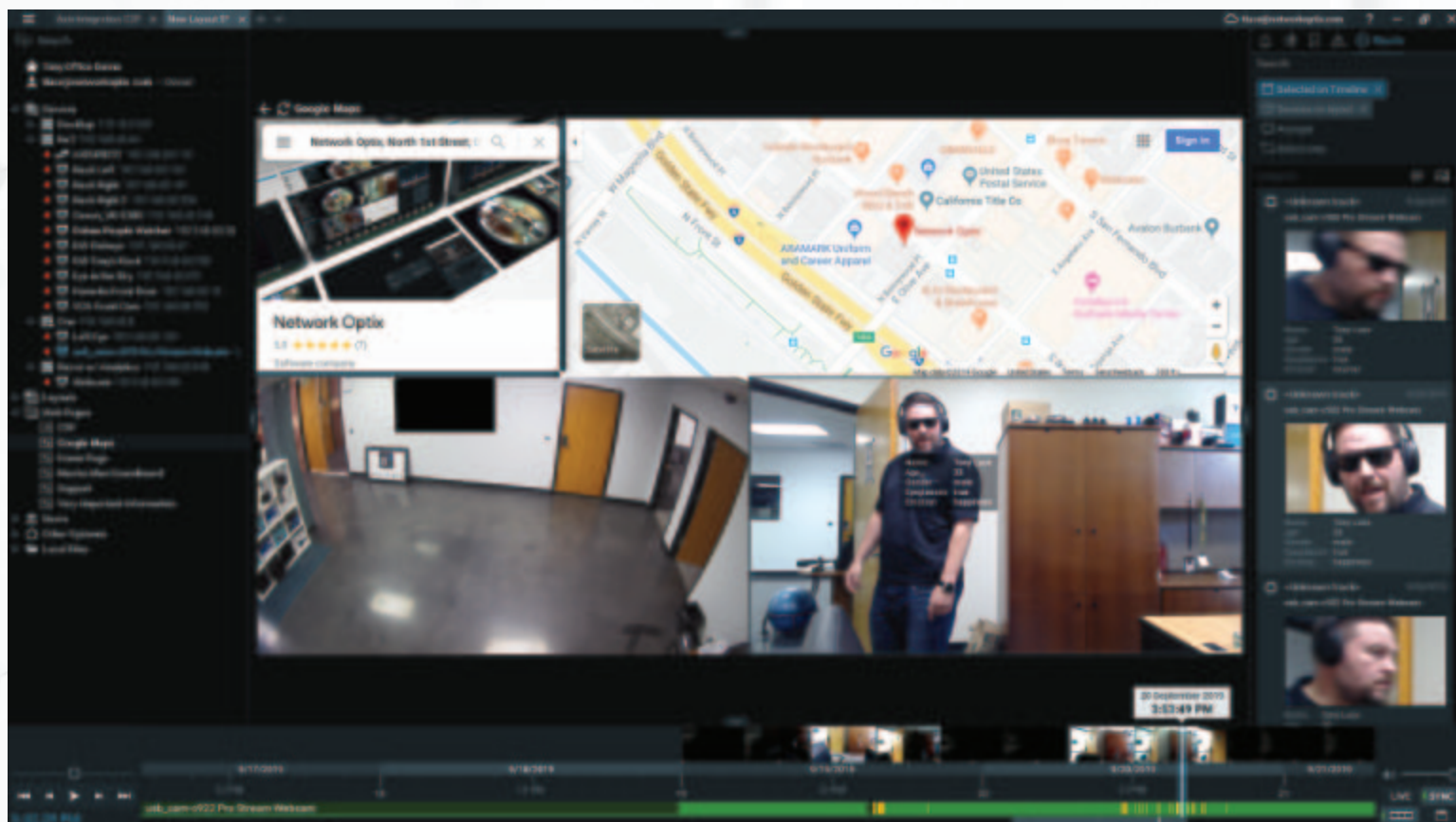
	Google Android
	Apple iOS



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# DESKTOP OVERVIEW

A rich media browser with a flexible GRID interface designed for connecting to, viewing, and managing your Nx Witness System.



## USABILITY

- Drag & Drop Interface
- Consolidated Notifications
- Adaptive Playback
- Customizable Layouts
- Digital Maps
- Adaptive Scaling

## MEDIA

- IP Video Cameras / Devices
- RTSP/HTTP Streams
- I/O Devices
- Web Pages / URLs
- Recorded Video Files
- Static Image Files

## CONFIGURATION

- Events & Rules Engine
- User Management
- IP Video Devices
- Server Management
- I/O Device Management
- Storage Management

## SEARCH

- Smart Motion Search
- Keyword Search
- Calendar Search
- Time-Slice Search
- Bookmarks
- Audit Trail



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# DESKTOP SPECS

## HARDWARE REQUIREMENTS

### MINIMUM SUPPORTED SPECS

HARD DRIVE: HDD/SSD/mSATA  
RAM: 2GB  
CPU: Quad Core Intel Celeron CPU or higher  
GRAPHICS: Intel HD Graphics 3000  
w/ OpenGL2.1 support  
NETWORKING: 1Gbps NIC

### PERFORMANCE SPECS

HARD DRIVE: Performance SSD  
RAM: 16 GB RAM  
CPU: Intel Core i5  
GRAPHICS: NVIDIA GeForce GTX 1050  
(OpenGL2.1 support is required)  
NETWORKING: 10 GB NIC

### MAXIMUM # OF GRID ITEMS PER LAYOUT

64 Items (e.g. 64 live streams)

## SUPPORTED OPERATING SYSTEMS

### WINDOWS

Windows 7  
Windows 8  
Windows 8.1  
Windows 10  
Windows Server 2008  
Windows Server 2008 R2  
Windows Server 2012  
Windows Server 2012 R2  
Windows 2016 v1607  
Windows 10 Enterprise

### UBUNTU LINUX

Ubuntu Linux 16.04 LTS  
Ubuntu Linux 18.04 LTS

### MAC OS

OSX 10.12  
OSX 10.13  
OSX 10.14

## UNIQUE CAPABILITIES

### DESKTOP MODES

CONNECTED CLIENT: Manage any connected Nx Witness System

MEDIA PLAYER: View, edit, and export offline videos and images

VIDEO WALL: Put Nx Desktop into Video Wall mode to control remotely

### UNIQUE FEATURES

MULTILINGUAL SUPPORT: Support for 20+ languages

SHOWREEL: Fully customizable viewing sequences of any GRID media

CUSTOMIZABLE BRANDING: Customizable Desktop background

DRAG & DROP REASSIGNMENT: Move cameras/streams between Servers

### SEARCH

KEYWORD: Search System Resources using Keywords

FLEX TIMELINE: Search by date / time using calendar or mouse movements

EVENTS: Quickly search System event log to find event-driven video

SMART MOTION: Select specific pixels to search a year of archive in seconds

BOOKMARKS: Create Bookmarks manually or automatically with Rules Engine

## SUPPORTED MEDIA PLAYBACK & CONTROL

### LIVE STREAMING (CAMERAS & STREAMS)

CODECS: H.265 H.264 MJPEG

### OFFLINE MEDIA FILES

VIDEOS: AVI MKV MP4 MOV, TS M2TS MPEG MPG FLV WMV 3GP

IMAGES: JPG PNG GIF BMP TIFF

### CONTROL DEVICES

I/O Devices: Status and Triggers

SERVERS: Server Health Monitoring

### BUILT-IN BROWSER

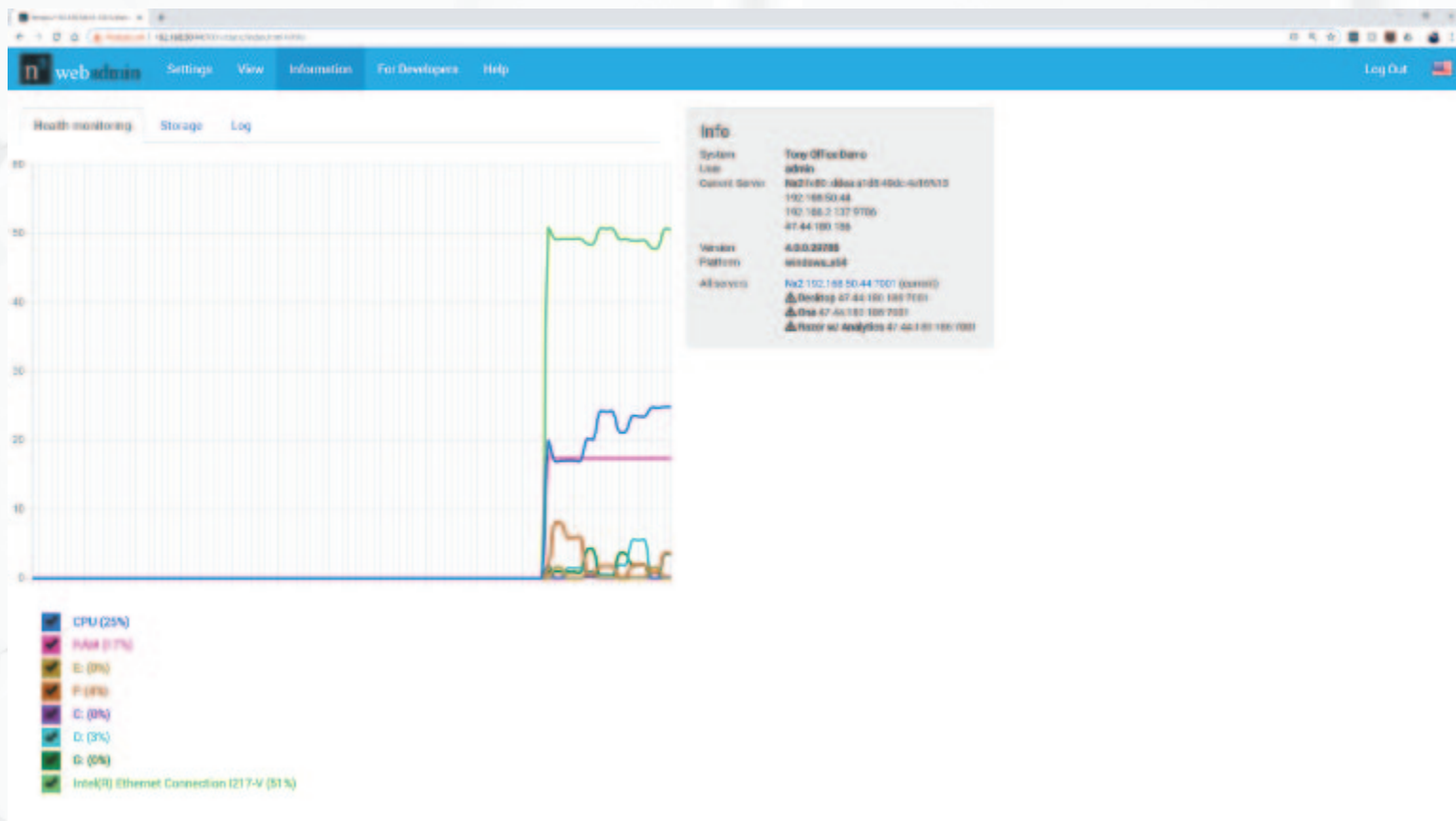
BROWSER SUPPORT: Websites, URLs, IP Addresses



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# SERVER OVERVIEW

A lightweight media server application designed for discovering, adding, and managing system resources and their related metadata.



DISCOVER	MANAGE	VIEW	INTEGRATE
99% of IP Cameras, Webcams	Device Configurations	Server Health	HTTP Events & Actions
I/O Devices	System Rules	Live / Recorded Video	Server API
Encoders	Failover / Redundancy	System Configuration	Metadata SDK
RTSP / HTTP / UDP Streams	Connections (HTTP, HTTPS)	Log Files	Video Source SDK
SAMBA NAS Devices	Archived Video	Audit Trail	Storage SDK
Nx Systems and Servers	Flexible Archive Backup	Storage Status	Server via Cloud API



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# SERVER SPECS

## COMPATIBLE HARDWARE

### RECOMMENDED BASED ON # OF STREAMS

STREAMS	RAM	NIC	CPU
Up to 8	1 GB	1 GB	Dual Core ARM
Up to 16	2 GB	1 GB	Dual Core Atom
Up to 32	4 GB	1 GB	Dual Core Celeron
Up to 64	8 GB	1 GB	Core i3
Up to 128	16 GB	1 GB	Core i3

\*CPUs change fast and this spec sheet is fixed.

### RECOMMENDED MAXIMUMS

- # OF RESOURCES PER SYSTEM: 10,000
- # OF CLIENTS PER SYSTEM: UNLIMITED
- # OF STREAMS PER SERVER: 128
- # OF SERVERS IN A SERVER HIVE: 100
- # OF USERS IN A SYSTEM: 1000

\*Based on lab environments. Designing a system that exceeds the numbers above? Contact us for assistance.

## SUPPORTED OPERATING SYSTEMS

### WINDOWS

- Windows 7
- Windows 8
- Windows 8.1
- Windows 10
- Windows Server 2008
- Windows Server 2008 R2
- Windows Server 2012
- Windows Server 2012 R2
- Windows 2016 v1607
- Windows 10 Enterprise

### UBUNTU LINUX

- Ubuntu Linux 16.04 LTS
- Ubuntu Linux 18.04 LTS

### ARM DEVICES

- Raspberry Pi
- Jetson TX1, TX2, XAVIER AGX
- \* Contact us to learn more about our ARM support

## UNIQUE CAPABILITIES

### SERVER HIVE

- SYNCHRONIZATION: SERVERS SYNCHRONIZE SYSTEM DATA IN REAL TIME
- FAILOVER: AUTOMATIC CAMERA FAILOVER WHEN SERVER FAILS

### ARCHIVE INTEGRITY

- INTEGRITY CHECK: NOTIFICATION WHEN FILES MANUAL MODIFIED
- BACKUP: REAL-TIME (CONCURRENT) OR SCHEDULED

### NO PREREQUISITE SOFTWARE REQUIRED

- DATABASE: SQLITE + PROPRIETARY ARCHIVE INDEX
- LIGHTWEIGHT: ~75MB INSTALL FILE

### STORAGE

- LAN / WAN: HDD SSD NAS (SAMBA)
- STORAGE SDK: INTEGRATE NEW STORAGE MEDIUMS (E.G. FTP, CLOUD)

### SECURITY

- USER RIGHTS: LDAP/ACTIVE DIRECTORY SECURE PASSWORD RECOVERY
- TECHNOLOGIES: HTTPS OPEN SSL SALTED MD5 HASH TSL/SSL
- ENCRYPTION: SECURE CONNECTIONS ENCRYPTED VIDEO

## SUPPORTED MEDIA STREAMING

### LIVE STREAM (AVAILABLE VIA SERVER API)

- VIDEO: H.265 H.264 MJPEG
- AUDIO: MPGA
- PROTOCOLS: RTSP WebM HLS
- TRANSCODING: SUPPORTED (FOR WEB CLIENT, MOBILE, API)

### OTHER MEDIA

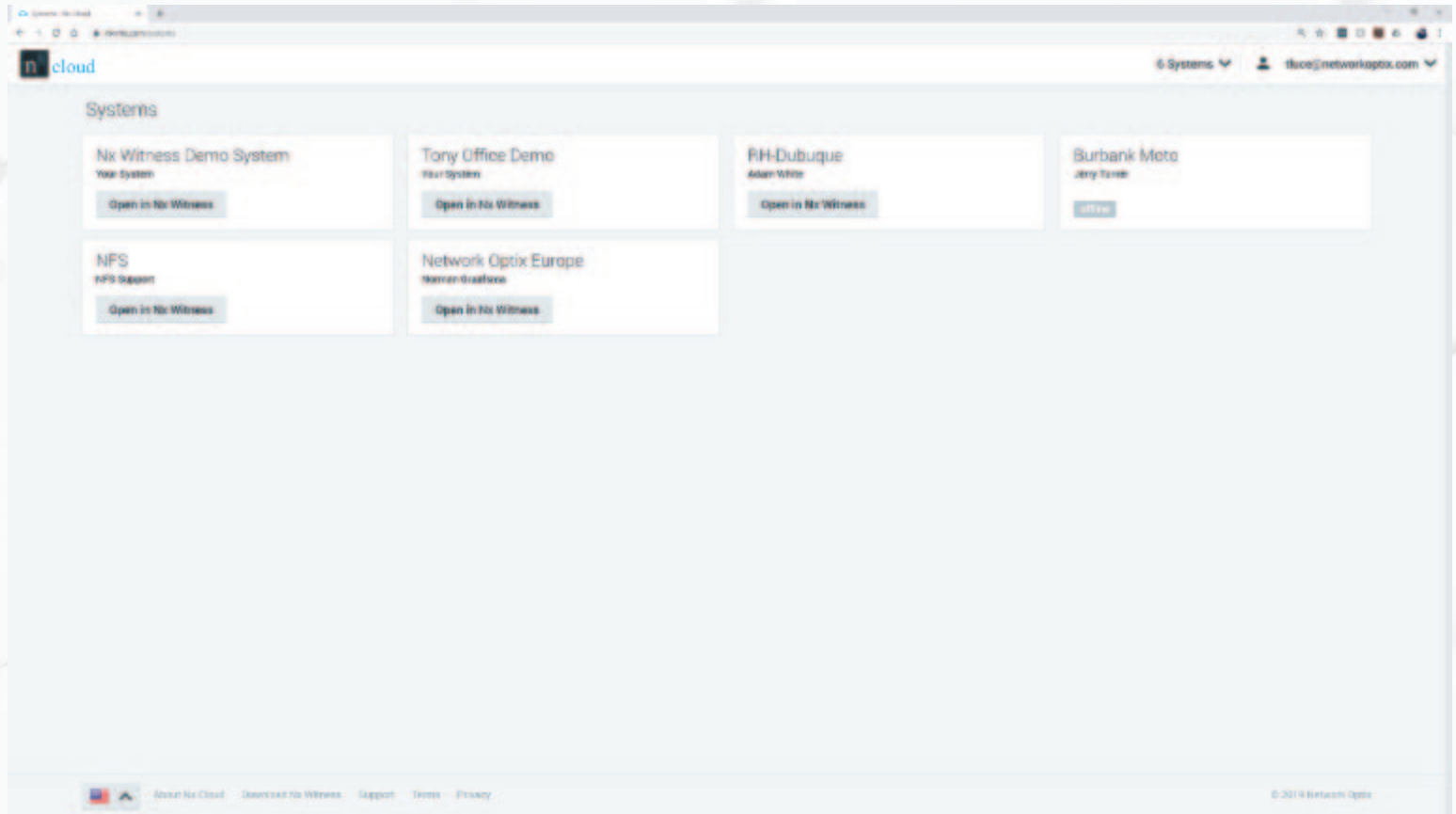
- VIDEOS: AVI MKV MP4 MOV TS M2TS MPEG MPG FLV WMV 3GP
- IMAGES: JPG PNG GIF BMP TIFF
- VIRTUAL CAMERA: Upload footage from offline cameras (e.g. wearable cameras)



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# CLOUD OVERVIEW

A public cloud application built to enable simple, fast, remote connectivity and management of Nx Witness Systems.



CONNECT	
	NAT Traversal
	Data Proxy via AWS
	LDAP Credentials
	Encrypted Connections
	Wifi / LAN / WAN
	4G / LTE / Data

VIEW	
	Live Video (adaptive)
	Recorded Video (adaptive)
	Camera Details
	Keyword Search
	Calendar Search
	Scalable Timeline

MANAGE	
	System Settings
	User Permissions
	Cloud Connections
	Share via Email

SCALE	
	Unlimited # of Systems
	Unlimited # of Users
	Unlimited # of Devices
	Cloud API

# CLOUD SPECS



## SCALABILITY

MAXIMUM # OF CONNECTED SYSTEMS

UNLIMITED

MAXIMUM # OF USERS

UNLIMITED

## NX CLOUD SERVICES

### CLOUD CONNECT

Connect any Nx Witness System to Nx Cloud for simple remote connectivity from anywhere using Network Optix's NAT Traversal and Cloud Data Proxy technology.

### MANAGE USERS

Add an unlimited number of users to a single Nx Cloud System. Share access to your Nx Witness System in seconds using only email addresses. Create Custom Roles to quickly assign access to multiple Nx Cloud connected Systems.

## UNIQUE CAPABILITIES

### CONNECTIVITY

CLOUD DATA PROXY: Connect via Nx Cloud to view System data and video

NAT TRAVERSAL (DEFAULT): Connect directly to System via Cloud addressing

## SECURE COMMUNICATIONS

### SECURITY

PASSWORD RECOVERY: Reset password via email

PASSWORD STORAGE: Complex Multi-Level MD5 Hash

ENCRYPTED CONNECTIONS: HTTPS OPENSSL

ENCRYPTED VIDEO: Encrypt video between Client and Server applications

## INTERFACE

### CLOUD INTERFACE

SYSTEMS: View connected System tiles in Cloud Web Admin

SETTINGS: View users, rename systems, disconnect systems

VIEW: View live or recorded video from connected cameras / streams

VIEW: View live or recorded video from connected cameras / streams

### SUPPORTED BROWSERS

MOBILE / TABLET: CHROME SAFARI FIREFOX EDGE (AND OTHERS)

COMPUTERS: CHROME SAFARI FIREFOX EDGE (AND OTHERS)

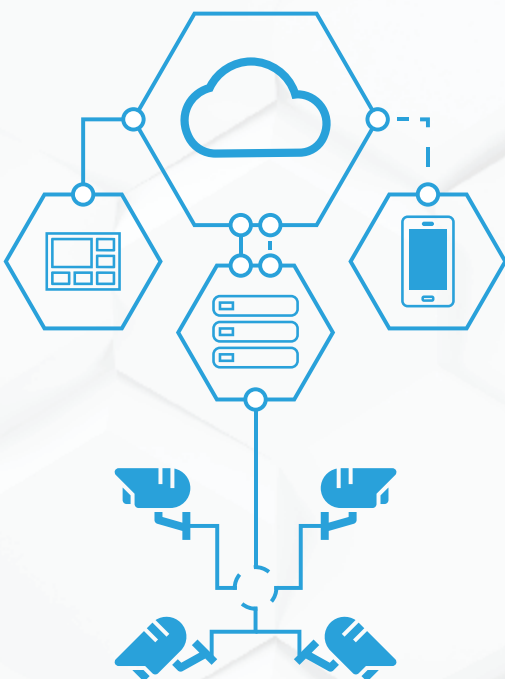
## INTEGRATION TOOLS

### FOR DEVELOPERS

CLOUD API: Integrate with 3rd party applications and devices

### FOR ADMINS

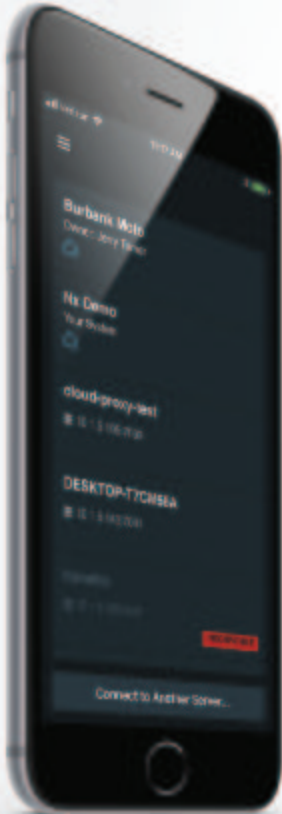
ZAPIER: Create connections to other Cloud apps with Zapier.com





# MOBILE OVERVIEW

A mobile application for iOS and Android devices design for connecting to, viewing, and interacting with system devices.



## CONNECT

	NAT Traversal
	Data Proxy via Cloud
	Encrypted Connections
	Wifi / LAN / WAN
	4G / LTE / Data
	Encrypted Video

## VIEW

	Live Video (Adaptive)
	Recorded Video (Adaptive)
	Camera Status
	Layouts
	Adjustable Resolutions
	Portrait / Landscape

## CONTROL

	Fisheye Dewarping
	Pan-Tilt-Zoom (PTZ)
	Soft Triggers
	2-Way Audio
	Cloud or Local Systems
	Unlimited # of Systems

## SEARCH

	Keyword Camera Search
	Calendar Search
	Thumbnail Search
	Notifications (coming soon)
	Flex Timeline
	Smart Motion (coming soon)





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# MOBILE OVERVIEW

## SUPPORTED DEVICES



### ANDROID PHONES / TABLETS

Android 5.0: "Lollipop" (November 2014)  
Android 6.0: "Marshmallow" (October 2015)  
Android 7.0, 7.1: "Nougat" (August 2016)  
Android 8.0, 8.1: "Oreo" (August 2017)  
Android 9.0: "Pie" (August 2018)



### APPLE PHONES / TABLETS

iOS 10 (September 2016)  
iOS 11 (September 2017)  
iOS 12 (September 2018)



## VIEWING / PLAYBACK

### VIEWING MODES

PORTRAIT

LANDSCAPE

### ADJUSTABLE RESOLUTIONS

HIGHEST SPEED (BEST AVAILABLE FRAME RATE)

BEST QUALITY (BEST AVAILABLE RESOLUTION)

1080p

720p

480p

360p

Try Nx Witness FREE for 30 days.

Nx Witness is FREE for live streaming. To try recording cameras activate a FREE 30-DAY TRIAL for 4 cameras.

Get Started with your free trial today:

<http://networkoptix.com/nx-witness>

## KEY FEATURES

### CONNECT FROM ANYWHERE

LAN / WAN: Connect to Systems using public IP address or Dynamic DNS

VIA NX CLOUD: Login to Nx Cloud to view all shared Systems

ADAPTIVE CONNECTIONS: Works well on Wifi or Data (4G / LTE / 3G)

### VIEW LIVE OR RECORDED VIDEO

LIVE VIDEO: Connect to Systems using public IP address or Dynamic DNS

ARCHIVED VIDEO: Login to Nx Cloud to view all shared Systems

### CONTROL CAMERAS

FISHEYE CAMERAS: Universal dewarping for fisheye cameras

PTZ: Control PTZ cameras with Joystick and/or tap to move UX

SOFT TRIGGERS: Control soft triggers on cameras

2 WAY AUDIO: Talk through I/O or IP cameras that support Audio In / Out

### SEARCH

KEYWORD: Universal dewarping for fisheye cameras

CALENDAR: Control PTZ cameras with Joystick and/or tap to move UX

LAYOUTS: Control soft triggers on cameras

LIVE THUMBNAILS: Scroll through live thumbnails to find a camera / view

FLEX TIMELINE: Search using the same timeline interaction as Nx Desktop

SMART MOTION: Search using Smart Motion



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# DEVELOPER TOOLS

**C++ VIDEO SOURCE SDK**

**3RD PARTY VIDEO DEVICES**

The Video Source SDK provides the ability to integrate virtually any live or recorded video source (IP Cameras, NVRs, DVRs, etc) into System. It also allows integrating device I/O ports and motion detection information.

**3RD PARTY I/O DEVICES**

The Video Source SDK also provides the ability to integrate 3rd party I/O devices which can increase hard wire interoperability with 3rd party systems and connected devices.

**C++ STORAGE SDK (C++)**

**3RD PARTY STORAGE**

The Storage SDK allows developers to read from or write to any storage location: local, remote, and cloud. Creating a storage plugin requires implementing standard functions such as: I/O stream, if file exist, delete file, list of files in the folder, etc. The Storage SDK also contains an example for using an FTP server as a storage location.

**Nx Witness Dev Tools are FREE!**

Nx Witness developer tools are FREE to use and can be accessed by installing Nx Witness VMS and opening the Server Web Admin interface.

Download Nx Witness today at:  
<http://networkoptix.com/nx-witness>



**SERVER API (REST API)**

**INTEGRATE ANYTHING USING HTTP API CALLS**

A REST API that gives developers the ability to access almost every system feature available in the regular client: query/manage system resources (servers, cameras, users, permissions), pull live or recorded video out of System, generate events, create rules, control PTZ cameras, and more.

**METADATA SDK (AVAILABLE IN V4.0)**

**CREATE PLUGINS THAT RUN ON NX SERVER**

The Metadata SDK (available in v4.0) allows developers and tech partners to create installable Plugins for Nx Witness which run on the Nx Server application to create tight, seamless integrations. The Metadata SDK is focused on bringing object metadata from 3rd party Systems - like Face Recognition, Retail Analytics, License Plate Recognition, etc - to enhance both real-time system intelligence and post-event, post-capture video search and review.