

2017  
Siemens  
Automation  
Summit

# Remote Plant Monitoring and Operations

Kevin Smith    Pigler Automation, LLC



## 2017 Automation Summit

**Title: Remote Plant Monitoring and Operations: Are Smart Devices Ready for Process Control?**

**Track: Maintenance & Operations**

**Presenter: Kevin Smith**

**Company: Pigler Automation**

**Session #: 7.4**

- Pigler Automation is a SIEMENS certified Solution Partner with the most PCS7 certified engineers in North America
- Pigler Automation has 10 employees, 7 of which are PCS7 certified engineers
- Located in Longmont, Colorado, ~30 miles north of Denver
- Industries Served: Oil & Gas, Power, Chemical, Food & Beverage

For more information please visit:

[www.piglerautomation.com](http://www.piglerautomation.com)

Or call : (866) 871-1456

## About Me

### Kevin Smith

- B.S. in Mechanical Engineering from Colorado School of Mines
- 4 years experience with emission controls solutions for the power generation industry
- 2 years experience programming Allen Bradley controls for mercury capture systems
- Lead Controls Engineer with Pigler Automation since April 2015
- PCS7 Certified Process Control Engineer

## Challenge

### Industry Trends

- Reduced operation and maintenance staff
- Available technology
- Increased productivity

### Result

- Remote operations
- Integration of tablets or smart phones



## Our First Step:

- Evaluate the following existing remote monitoring applications based on multiple criteria:

- WinCC/WebNavigator
- WinCC/WebUX
- WinCC Sm@rtServer
- RealVNC 
- Remote Desktop 
- ThinManager 



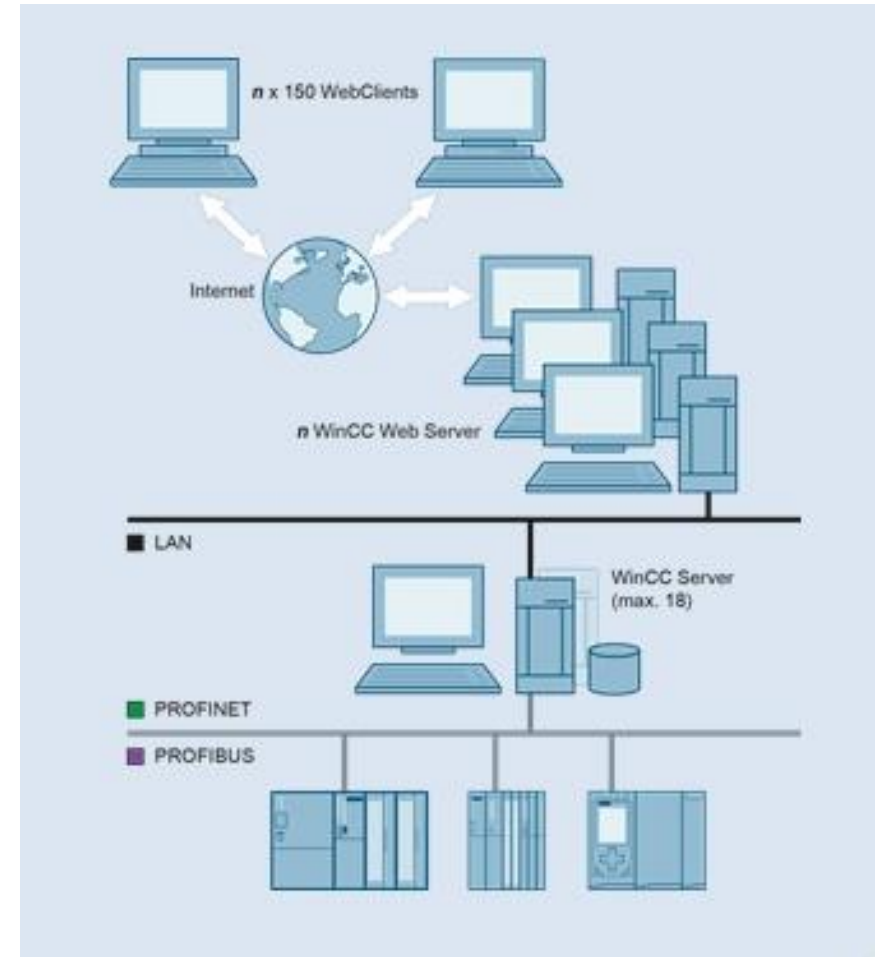
- Criteria:
  - Engineering
  - Flexibility
  - Capabilities / Limitations
  - Security

## Engineering

- Publish Picture Files for availability
- Assign WinCC user administration rights
- Configure WebServer using WinCC Web Configurator
- Configure Windows Firewall
- Configure client machines

## Flexibility

- View Runtime from anywhere in network

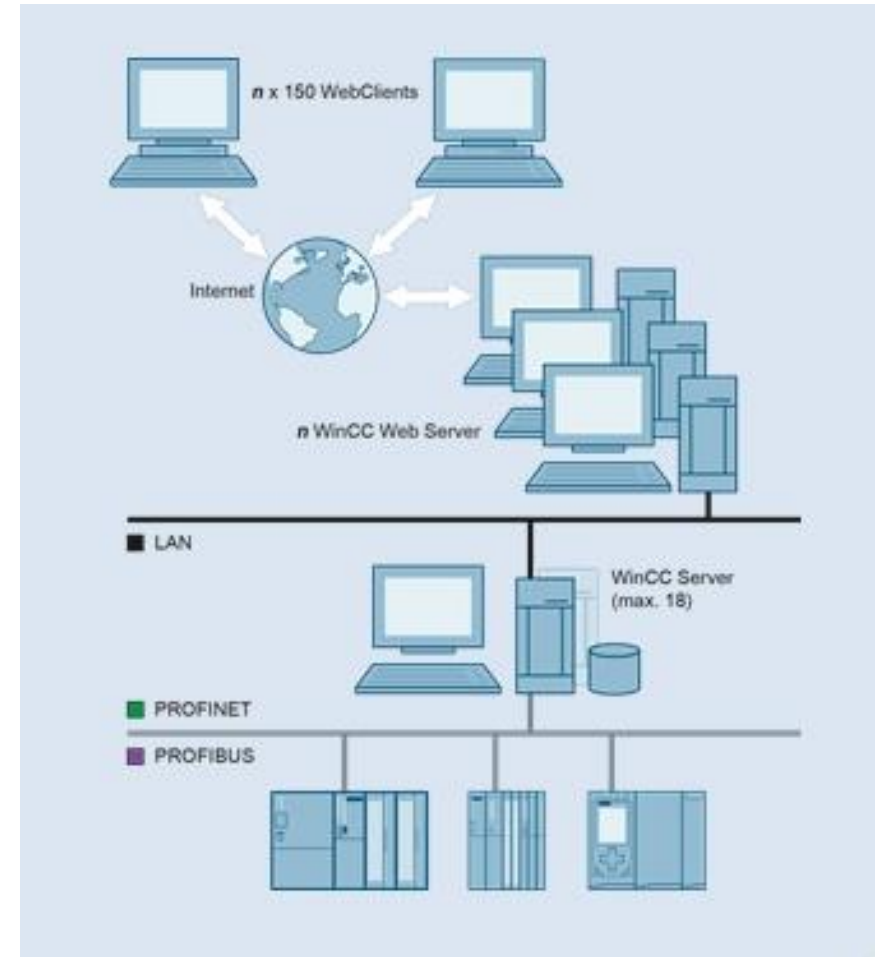


## Capabilities / Limitations

- Plant/Process overview
- Full control & nearly full functionality
- No mobile support
- Requires Internet Explorer and ActiveX extensions

## Security

- WinCC user administration
- SSL
- VPN / firewall
- Network separation
- View only option







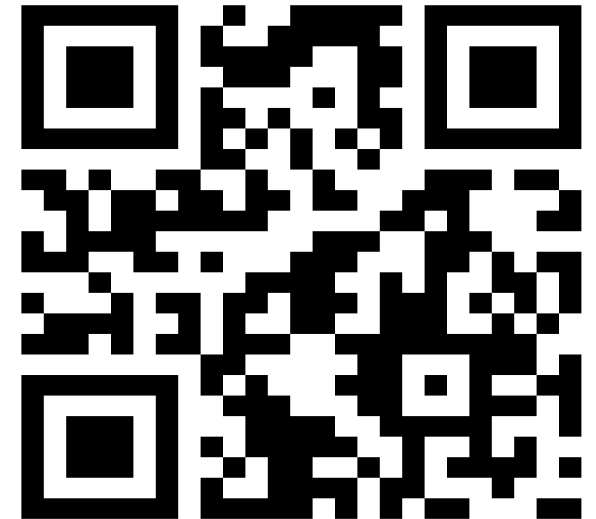
## Advantages:

- Multi-session (license dependent)
- Integrated user authorization for security
- Server based licensing
- Ideal for dedicated remote operations or WAN configurations

## Disadvantages:

- Additional engineering
- Dedicated hardware (OS-Client)
- Not available for mobile devices

## Siemens Demo Access:



<http://62.245.153.66:86/>

User name: wincce

Password: winccpass

## Engineering

- Set web-enabled property of selected pictures
- Design custom screens
- Assign WinCC user administration rights
- Configure WebServer using WinCC Web Configurator
- Configure security features ie. SSL, VPN, Windows Firewall

## Flexibility

- Browser and platform independent
- HTML5 based



## Capabilities / Limitations

- Screen resolution dependent
- Limited scripting functionality
- Non APL conforming

## Security

- WinCC user administration
- SSL
- Firewall, VPN
- Network Separation
- View only



### Advantages:

- Multi-session (license dependent)
- Integrated user authorization for security
- Server based licensing
- Ideal for mobile status report formats

### Disadvantages:

- Non APL conforming
- Additional graphic design per screen resolution
- Small screen = small window into process

### Pigler Automation Demo:



<http://www.piglerautomation.com/education/>

### Siemens Demo:



<https://62.245.153.66:433/>

User name: wincce

Password: winccpass

## Engineering

- Configuring user passwords

## Flexibility

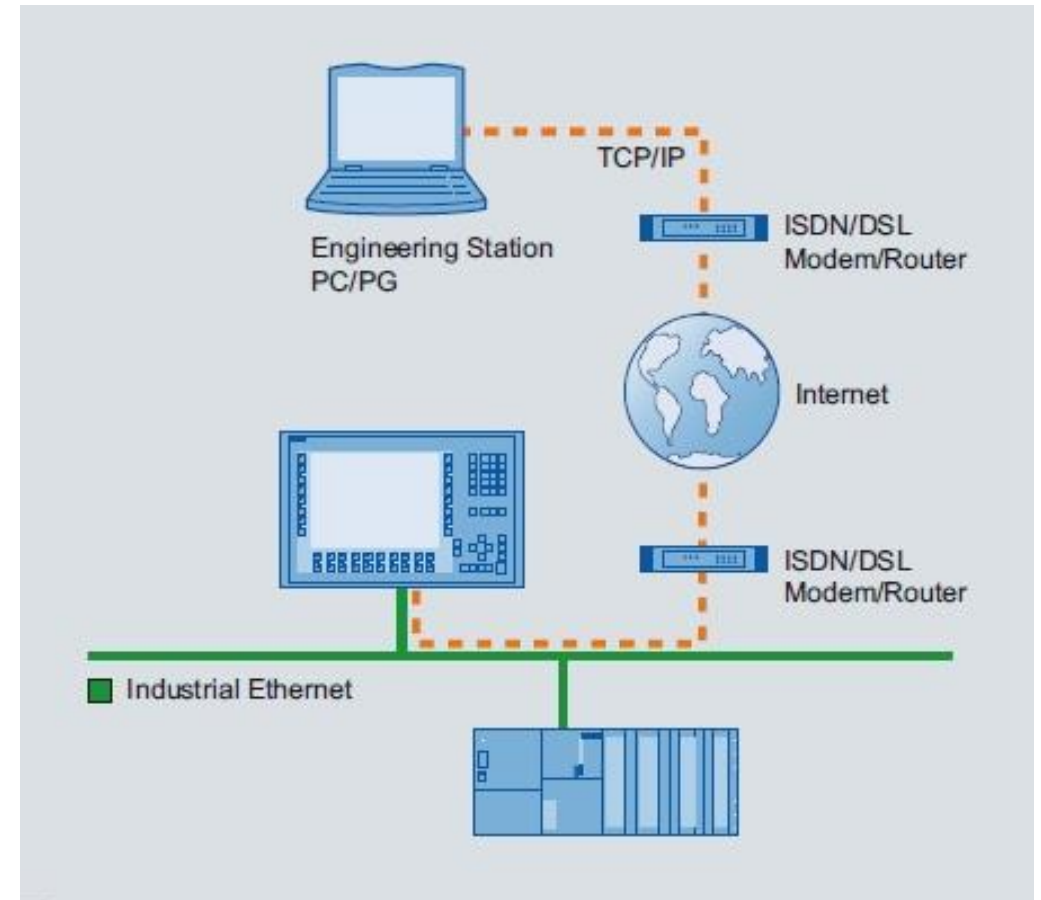
- Supports iOS, Android, and Microsoft Internet Explorer

## Capabilities / Limitations

- Multiple clients
- Shared session

## Security

- User Passwords, View only
- VPN, firewall, network separation





### Advantages:

- Low cost
- Deployable on SIMATIC Panels or WinCC Advanced
- Ideal for smaller / spread out configurations

### Disadvantages:

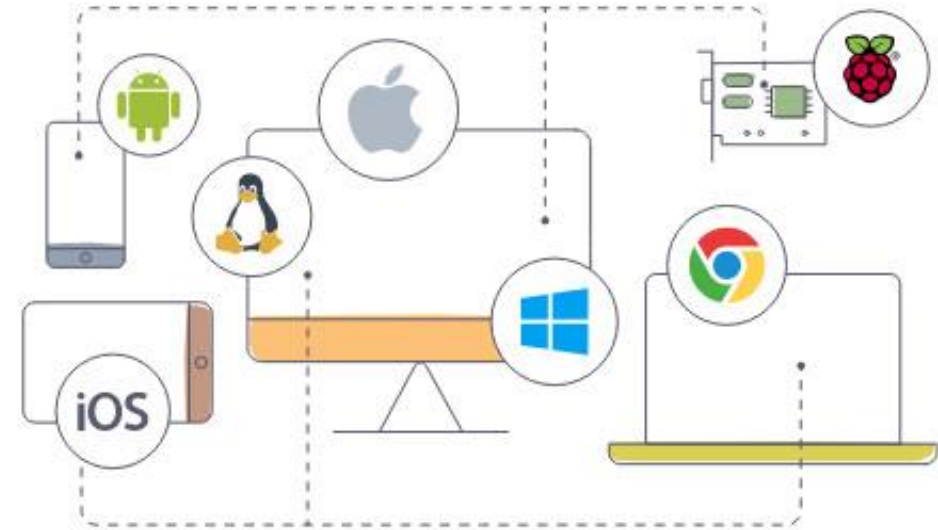
- Shared session

## Engineering

- Installing server and client software
- Creating user accounts and configuring access

## Flexibility

- VNC apps for iOS and Android
- Multiple monitor support

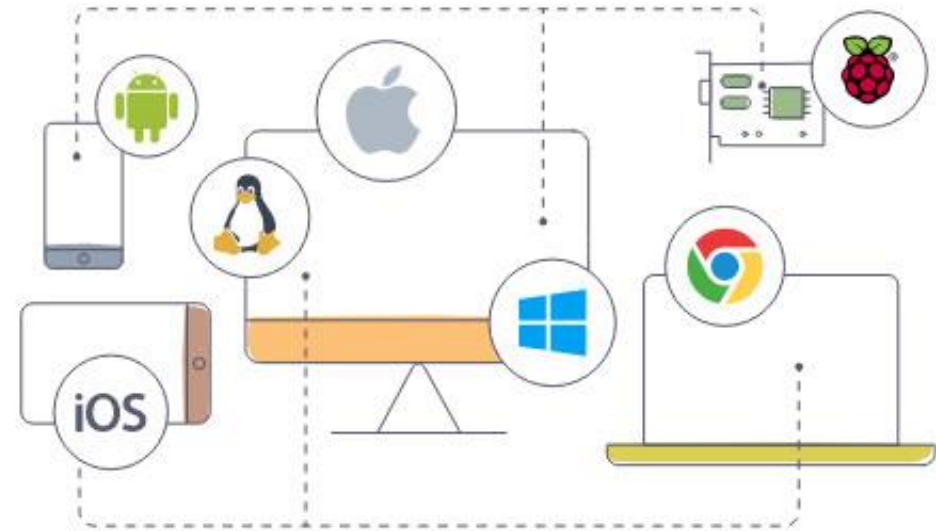


## Capabilities / Limitations

- Shared session
- No audio

## Security

- View only
- VPN, firewall
- IP filtering
- Network separation





### Advantages:

- Low priced annual subscription per server
- No licensing necessary for viewers
- Ideal for remote engineering and troubleshooting

### Disadvantages:

- No audible feature therefore not applicable for remote operation



## Remote Desktop

### Engineering

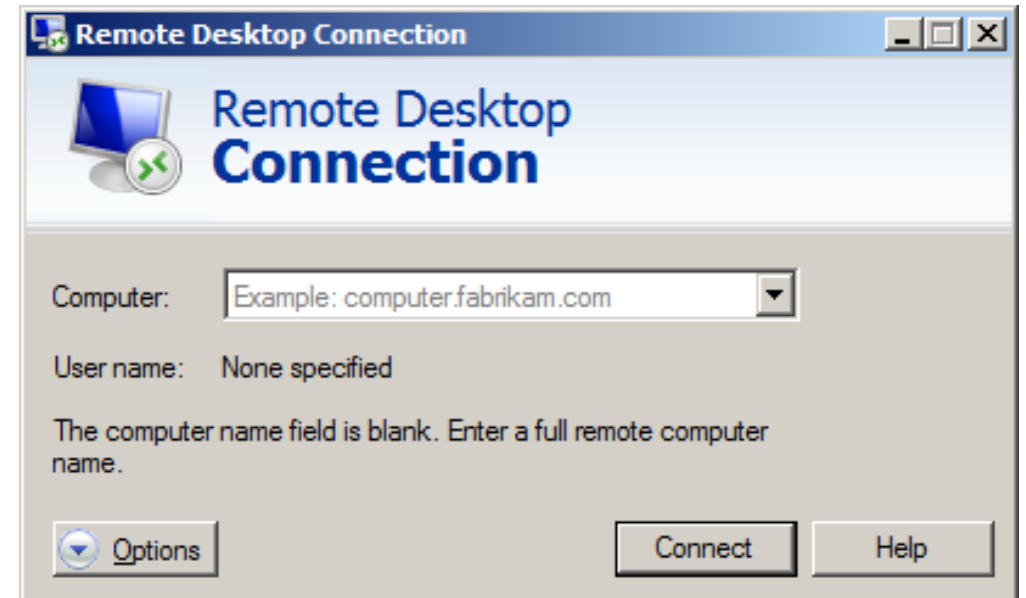
- Enable RDP in Windows
- Creating user accounts and configuring access

### Flexibility

- Multiple monitor support

### Capabilities / Limitations

- Single session
- Not compatible with some WinCC features



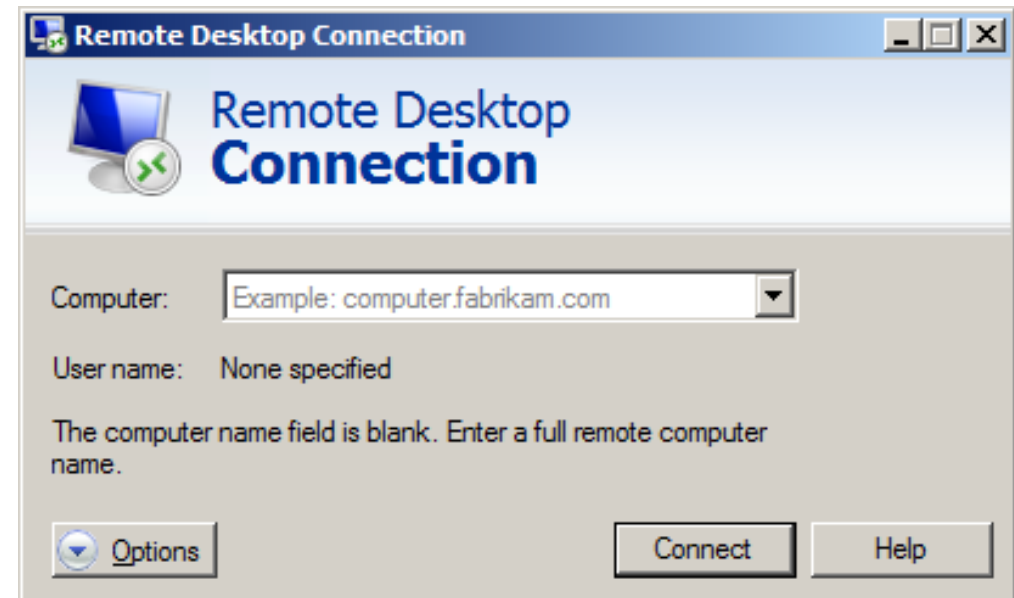


## Remote Desktop

SIEMENS

### Security

- VPN
- Firewall
- Network Separation





## Remote Desktop

### Advantages:

- Free with Windows
- Mobile support
- Simple to configure
- Audio Support
- Ideal for remote operations

### Disadvantages:

- Single session
- Not approved by Siemens to be used for OS-Servers, Engineering Stations, Batch Servers

Recommended procedure is to disable the RDP on these stations

## Security: The Second Challenge

### Wifi “in” Plant

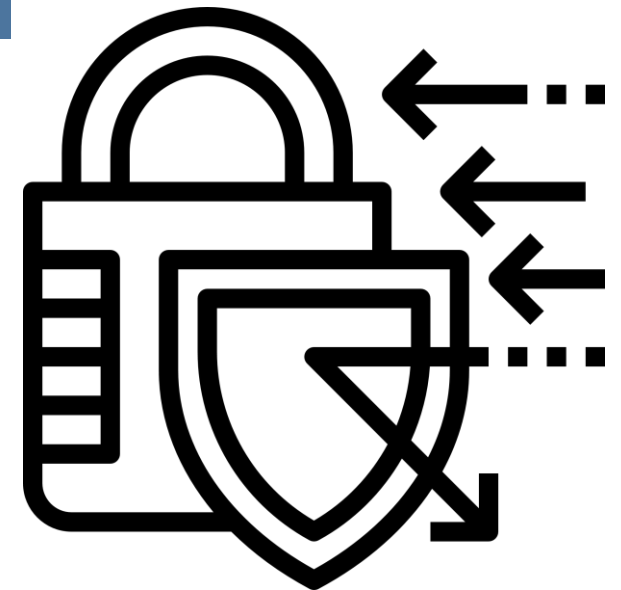
- No physical boundaries

### Mobile Device Access

- Lost cell phone or tablet

### Controlled Area Access

- Preventing personnel from accessing certain areas or equipment





## What is ThinManager?

A centralized manager for deployment of server based terminals that can be deployed on thin clients, PCs, or mobile devices

- Utilizes Remote Desktop Services (Terminal Services)
- Can be configured redundantly for high availability
- Can monitor all client activity
- Provides security based on additional user roles, geo-location, and thin clients without local data storage



## Engineering

- ThinManager Server and client configuration
- Network configuration
- Security provisioning

## Flexibility

- Platform independent
- Virtualized environment
- Unlimited client licensing available



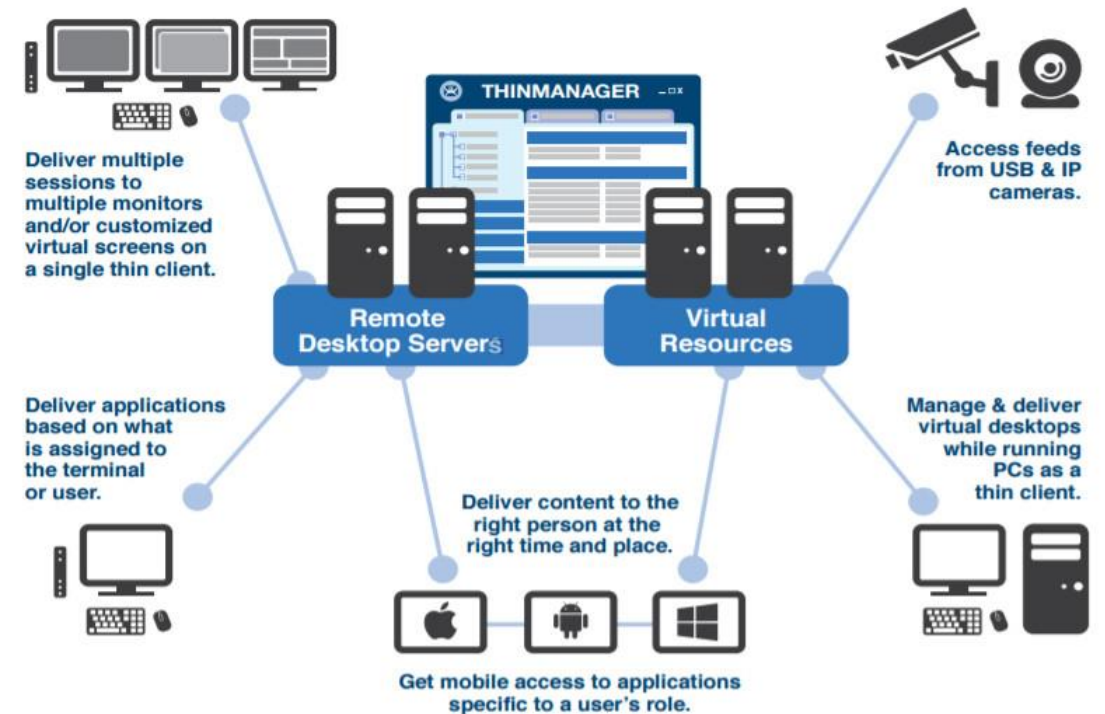


## Capabilities

- Relevance and Location delivery
- Ease of hardware replacement
- Central deployment

## Security

- PXE boot
- Relevance and location-based
- VPN, Firewall
- Network Separation





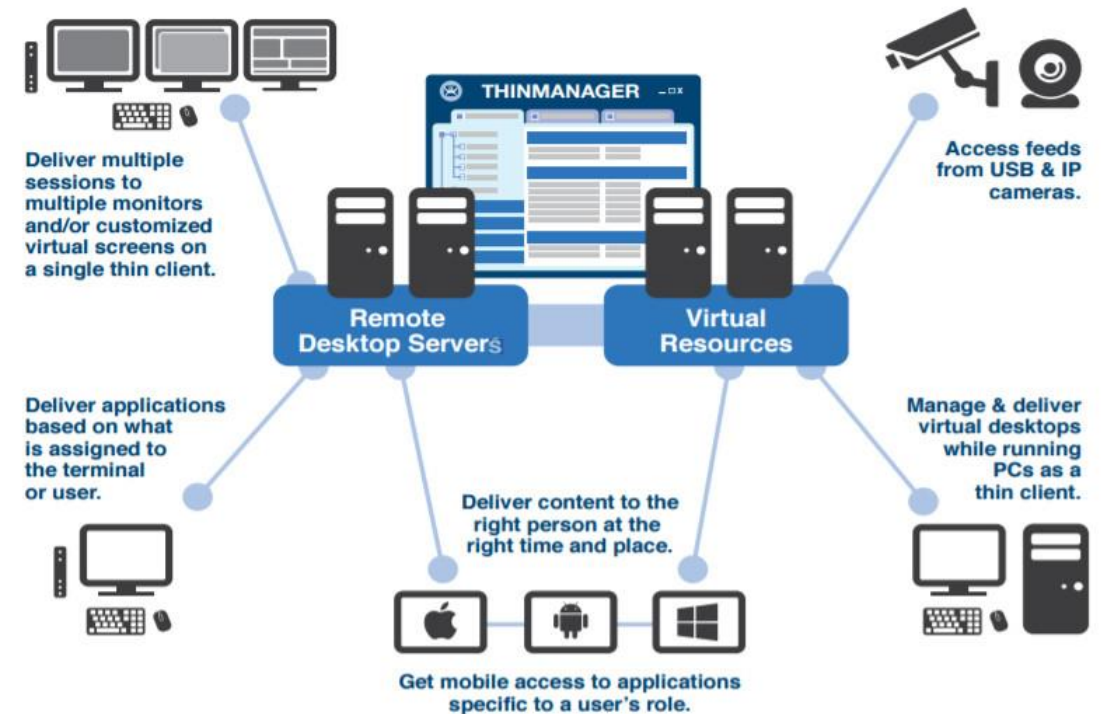


## Advantages

- Utilizes Terminal Server configuration
- Multi-user
- Multi-session
- Secure access based on relevance and location

## Disadvantages

- Requires considerable engineering and plant design





## The Next Step:

What to take away?

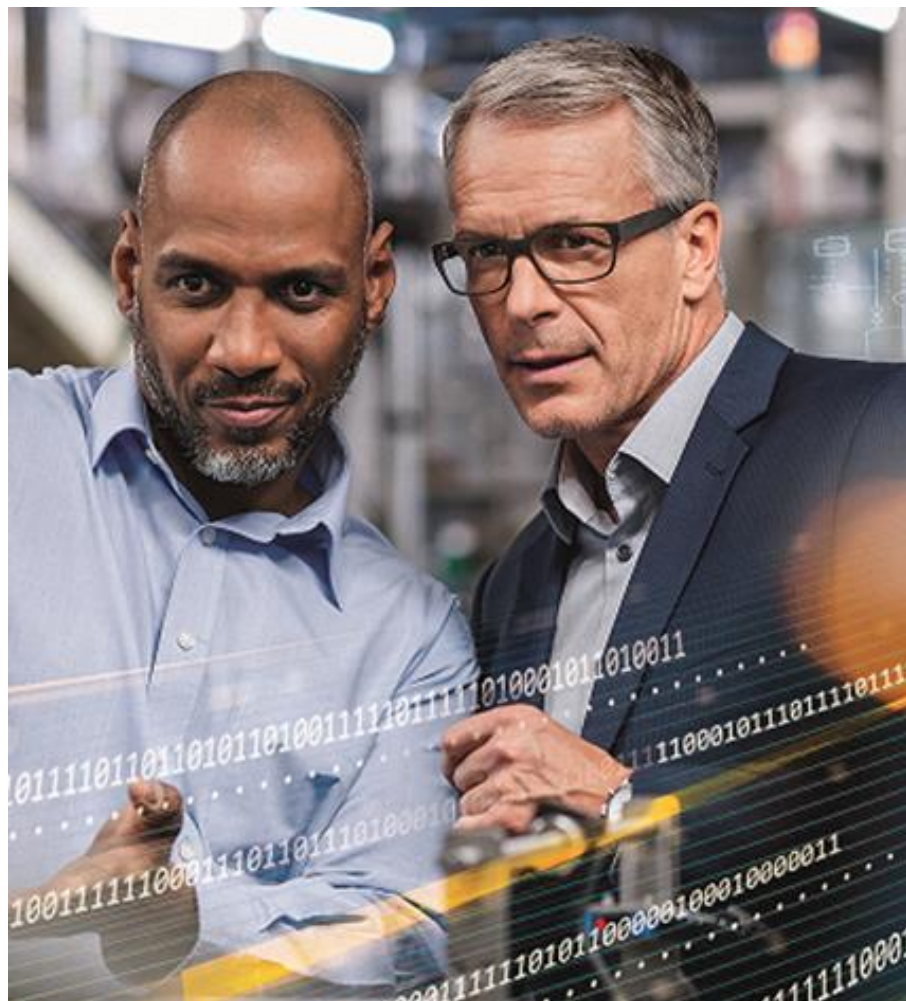
- Multiple products and solutions
- No single solution

Where do you see remote and mobile applications taking you?

- Please take a short survey and let us know how you would like to utilize this technology



## Remote Plant Monitoring and Operations



Name: Kevin Smith

Title: Lead Controls Engineer

Company: Pigler Automation, LLC

Email: Kevin.Smith@PiglerAutomation.com

Phone: (866) 871 - 1456

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Please fill out your survey via the summit app.

