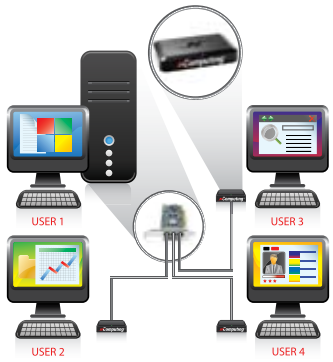
FREQUENTLY ASKED QUESTIONS

NComputing X550 kit



X-series connection diagram

The end user experience doesn't change

Emerging markets expand access with NComputing

What components make up the NComputing desktop virtualization solution?

- vSpace Virtualization Software: NComputing developed its own highly efficient and easy to install software to tap the unused power of standard PC hardware and allocate that power to simultaneously support many user sessions.
- User eXtension Protocol (UXP): NComputing developed a highly optimized delivery mechanism, UXP, that extends the user's full desktop experience across a networked or direct connection.
- Access Devices: NComputing also created extremely simple access devices (with no local operating system) to "catch" the shared PC output delivered through UXP and present each user with what appears to be their own independent PC.

How does the user connect to the host computer?

- Each user still has their own standard monitor, keyboard, mouse, and speakers. Instead of connecting directly to a PC, these peripherals connect to a small NComputing access device, which connects to the shared PC either directly from a PCI card (X-series), or over Ethernet (L-series).

What is the end-user experience like?

- Performance is excellent, and each user sees what appears to be their own independent operating system and set of software applications. For most standard user applications including internet browsing, office productivity tools, e-mail and even multi-media, performance is very similar to that of a dedicated PC.
- Existence of other virtual desktops on a host PC is virtually invisible to users. Each access device appears to be an independent "workstation" with its own unique user account that is assigned by the operating system (i.e. Windows Server or Linux).

Does it take a huge server to run this environment?

No. Traditional thin clients require fat servers, but the highly efficient and optimized NComputing technology can use standard desktop PC hardware. An entry level PC will work fine and can easily run server operating systems hosting multiple users. And of course servers can be used to support even higher user density.

Is NComputing technology a good fit for emerging economies?

Yes. A major NComputing emphasis is on expanding the number of seats for users that typically have limited access to computing. In emerging economies, many businesses are forced to limit computer use to a few key employees due to capital and support costs. With NComputing, they can expand access to a greater number of employees and therefore improve productivity. It's very rare for schools in emerging economies to have a student-to-computer ratio that supports effective learning. Today, thousands of schools in the developing world are adding virtual desktops with NComputing technology. Public access applications such as internet cafés and libraries are another area where NComputing solutions expand access for the developing world.

Businesses become more efficent with NComputing

Is NComputing technology a good fit for the developed regions?

Yes. Even in wealthy countries, school funding lags and rarely supports one-to-one computing. With the NComputing solution, schools can get at least twice the number of seats for the same budget. Also, small, medium and large businesses are constantly looking for ways to save on computing acquisition and administration costs. NComputing solutions help manufacturers, call centers, non-profit organizations, and many more commercial businesses and enterprises save and become more efficient.

What are the advantages?

NComputing solutions are compatible with your existing applications so end-users can work with familiar software and the IT staff does not need re-training.

NComputing enables truly affordable access to computing for everyone due to an immediate reduction in cost (as low as $70 for a new user)!

NComputing solutions are simple and easy to setup, deploy, secure and maintain saving you time and avoiding headaches. Anyone with basic PC skills can setup and manage NComputing systems.

The NComputing solution is highly efficient by sharing an underutilized PC among multiple users who connect through efficient access devices that save space and electricity. Access devices use less than 5 watts of power. This is generally only 5% of the power of a typical PC.

Feature	PC	X-series	L-series
Environment	Single user	Multi-user	Multi-user
Users supported	Only one	Up to 11	Up to 30 per host or VM
Cost per user	$399 to $799	From $70 per seat	From $149 per seat
Power usage	110 watts	~ 1 watt per user	< 5 watts
Installation time	Time to set up, configure and install apps on each PC	Simple & quick: set up the access devices, install host software and utilize the resources of the host	Simple & quick: set up the access devices, install host software and utilize the resources of the host
Reliability	Many moving parts in this complex and hot system	No moving parts enables extended product life time	No moving parts enables extended product life time
Noise and space	Large system with fans and many moving parts	No noise. Small form factor access device	No noise. Small form factor access device
Eco friendliness	High power consumption, lower life cycle, more e-waste	Longer product life cycle, much lower power and much less e-waste	Longer product life cycle, much lower power and much less e-waste
IT support cost	Per PC	Fewer PCs to maintain = fewer IT headaches = lower costs	Fewer PCs to maintain = fewer IT headaches = lower costs

What applications are not ideal for NComputing?

NComputing's desktop virtualization technology delivers a rich PC experience and is usually identical to using a dedicated PC. However, there are situations where users need their own PCs:

- Advanced graphic design applications and games requiring 3D acceleration: NComputing does not provide 3D graphics acceleration support for applications such as 3D games and high-end CAD software.

- Software that does not support terminal services: Most software applications support multi-user or terminal services environments such as NComputing's and those will normally work well in the virtual environment; however, some applications may not be compatible. Check your application documentation for multi-user/terminal services support.

- Power users or software developers: These users often need a dedicated (and late-model) PC to run specialized applications that need the majority of the processor's capabilities. This type of computing is not advised for a virtual environment.

How does the NComputing solution save me money?

- By spreading the higher cost of the host PC hardware over multiple users, individual computing stations can be acquired at a much lower cost per seat.

- The access devices themselves are extremely reliable; so, desktop maintenance and support trips go down.

- Dramatically reducing the count of PCs to be supported also reduces maintenance and support costs.

- The electricity required to run each additional user's computing environment is as much as 95% less than required by giving them a dedicated PC.

What are the user and processor bandwidth limits?

- Since typical processor utilization for productivity applications (e.g., Microsoft Office) is only about 1-10% of the processor's bandwidth, NComputing desktop virtualization can support up to 30 users performing the typical office tasks of typing reports, entering spreadsheet data, or preparing presentations.

- Today's PCs have dual-core (and even quad-core) processors that run up to 3GHz and deliver 10 to 20 times the computing power of a typical PC from just 5 or 6 years ago. That is plenty of processing power for users in a desktop virtualization environment.

- One familiar way to think of sharing resources is the local power grid. Many people draw power from it for their use; some will be using it just for lighting, while others will be running their clothes washer and dryer and still others have industrial needs. The NComputing environment is similar to a grid where everyone shares common resources; but the great thing about PCs is that the processors are extremely fast and the combined needs of multiple users still only require a fraction of the processor's capacity on an ongoing basis. Also, if power needs do hit 100%, it is likely for a very short period of time. These peak periods are typically so short (measured in milliseconds) that a person typing a report could experience several >100% processor needs from others in the shared environment, but never even notice it.

- If more processing power is consistently needed, system tuning can solve the issue. The environment can be reconfigured to allow more power for all applications by upgrading the host or reducing the number of users per shared PC.

- Typical web browsing also takes little processor capacity, and the majority of the time browsing also takes little networking bandwidth.
- The following guidelines provide additional information.

Feature	PC	L-series	X-series	Notes
Environment	Single user	Multi-user	Multi-user	
Processor	Dedicated	Shared by all users	Shared by all users	
Memory	Dedicated	Shared	Shared	
Users supported	One	Up to 30	Up to 11	1, 2
Cost per user	$399 to $799	From $149 per seat	From $70 per seat	3
IT support cost	Per PC	Fewer PCs to maintain	Fewer PCs to maintain	
Power usage	110 watts	< 5 watts	~ 1 watt per user	
CD	Dedicated	Shared from a host, one user at a time	Shared from a host, one user at a time	
Multimedia	Dedicated	Yes, web quality video streaming and Flash	Yes, high quality video streaming and Flash	
3D graphics	Dedicated chip set	No 3D acceleration	No 3D acceleration	
Sound out (speakers)	Yes	Yes, stereo	Yes, stereo	4
Mice & keyboard	USB or PS/2	PS/2	PS/2	
USB memory support	Yes	Yes (L230)	Through the host	5
USB devices	Yes	Limited support	Through the host	6
Web access	Yes	Yes	Yes	
Networking (WAN)	Yes, whatever WAN/LAN the PC is connected to	Yes, whatever WAN/LAN the host is connected to	Yes, whatever WAN/LAN the host is connected to	7
IP address	Yes	Yes, and MAC ID	For the host	
Microphone	Yes	Yes (L230)	Via USB mic on the host	
Monitor support	Dependent upon video card installed	Up to 1440 x 900 or 1280 x 1024 @ 24 bit color	Up to 1440 x 900 or 1280 x 1024 @16 bit color	
Distance from host	n/a	LAN	Up to 10 meters	
Multi monitor support	Dependent upon video card installed	No	No	
Application support	Generally all supported	Generally all, need to be multi-user friendly	Generally all, need to be multi-user friendly	8

1. The L-series maximum number of users is 30 (including the shared PC). The number of users a customer's installation will support depends upon the host's configuration & performance expectations of the customer. Performance results are dependent upon the individual host hardware, memory, video card, applications being used, OS software & network conditions within any LAN/WAN.
2. Up to two X-series PCI cards can be added to a single PC allowing up to 11 users.
3. US pricing at the time of publication. Prices vary region to region due to other costs, such as tariffs.
4. Microphone support in the L230.
5. Transfer rates are slightly slower than USB 1.1
6. USB port is designed to support USB memory devices only, however, customers may qualify other USB devices.
7. The networking connection is shared by all. There may be peak periods of times where multiple users are making demands on the internet connection, so a high bandwidth connection is recommended.
8. Some apps may not support multi-user mode. Additional software licenses may be required by the software licensors. Please check your software and operating system user license agreements to ensure your continued compliance with such agreements.

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