

Cloud Setup of ShoWorks 2024

Using ShoWorks in Microsoft Azure

Cloud Setup of ShoWorks Anywhere

Using ShoWorks in Microsoft Azure

Total Completion Time: Approximately 1-hr (only needs to be done once)

Summary

Running ShoWorks 2024 in cloud services is now fully supported using Microsoft Azure Cloud Services. This concept is referred to as *"ShoWorks Anywhere"*. The Azure platform allows desktop applications like ShoWorks, to run in a virtualized environment consisting of one or more *virtual desktop machines*, accessible by multiple users from anywhere at any time. Each *virtual machine* is a cloud instance of a Windows 11 desktop with ShoWorks installed and running in RDP (Remote Desktop Protocol). No servers are involved. The result is an increase in accessibility, reliability, security, and cost savings to the fair. The process entails a subscription to Microsoft Azure services, which is relatively low-cost compared to otherwise investments in hardware and network upkeep. More importantly, this option allows the fair to not be limited to solely cloud or desktop but instead use a mixture of both platforms to leverage the strength or hedge the limitations of each. The implementation of ShoWorks Anywhere (ShoWorks in the Cloud), requires only a modest skill level.

Benefits of ShoWorks Anywhere

- Retains the same, familiar ShoWorks interface on both cloud and local platforms.
- Accessible from any computer that is connected to the internet at any time.
- **Reliability and security** are improved since the cloud is maintained by and within Microsoft's services.
- Eliminates **hardware** and **compatibility** requirements (any computer configuration, whether PC, Mac, Android or Chromebook). Only a modest internet connection is required (both Wi-Fi and direct connection are supported).
- **Reduced costs** due to less investments in upgraded machines and software compatibilities. The fair only pays for virtual machines when they are running plus a minor amount of storage used. This makes a perfect business model for seasonal operations like fairs, who have a varying number of users for relatively few days of the year.
- **Speed** is no longer an issue since all users are sharing data within the same virtual network.

Costs of ShoWorks Anywhere

Pricing per hour

The cost paid to ShoWorks remains unchanged. Added costs are paid to the Microsoft Azure subscription (a free credit/30-day trial is available). This *pay-as-you-go* platform is based on the time that a *virtual machine* is in operation and the storage used. Multiple simultaneous users each require access to separate virtual machines running a licensed copy of Windows 11. Most Azure subscriptions, including the free trial, include a Windows license though you may use your own Microsoft license or purchase more as needed from Microsoft. Time costs are based on a per hour rate, as little as \$0.01/hr

to an average of \$0.15/hr depending on your power needs. Since you only pay for time when a *virtual machine* is running, hourly costs cease once a user stops the *virtual machine* or optionally, the machine auto-stops at a predetermined scheduled daily time that you have chosen. This makes a variable rate **cost less than a cup of coffee per day** even for power users.

Affordable Spot Instance alternatives

Spot instances are an optional configuration of *virtual machines* that provide additional cost savings for fairs that do not need 100% availability of a *virtual machine*. This option allows an ultra-low-cost (about 1/15th of the normal cost) *virtual machine* hourly rate in exchange for allowing Microsoft to temporarily shut down a *virtual machine* in case of an urgent need to provide computing power elsewhere in the world. Microsoft would provide advance notice before retrieving the resource.

A spot instance is a perfect choice for secondary/non-critical access for users that need quick access to ShoWorks but are okay with a remote possibility of the *virtual machine* being unavailable for short periods.

A spot instance is not recommended if the *virtual machine* will be:

1) hosting your data file (where your ShoWorks data file is stored), or

2) needed during time sensitive operations, such as during your fair when interruptions or downtime would not be acceptable.

For more information about spot instances, see <u>https://learn.microsoft.com/en-us/azure/virtual-machines/spot-vms</u>

Accessible 24/7 or auto-shut down options

Like a single desktop machine, a *virtual machine* can be accessed by different users at different times, however simultaneous multi-user access requires multiple *virtual machines*. Most fairs will need one *virtual machine* running only for a few hours per day for the weeks leading up to, during, and after fair time. Some fairs may prefer one or more *virtual machines* running 24/7 for a few weeks. Other fairs may prefer one *virtual machine* running 24/7 for the entire year with additional *virtual machines* available to startup and run on an "as needed" basis for access of other users during busy times.

One rarely needs a *virtual machine* running 24/7, even when unplanned access is required. Otherwise, a stopped machine only adds a few more minutes to wait while it starts up from the stopped state. Better stated, if you don't mind additionally opening a web browser and logging in to Microsoft's portal to start a virtual machine and waiting a few minutes before accessing your ShoWorks, as opposed to only a second or two to access click an icon to launch a *virtual machine* that continuously running, then there is little need to have a *virtual machine* running 24/7 when you are not using it.

You also have the choice to enable an "auto shut-down" time of day or night that the machine will automatically stop (shut-down) if left unattended.

Scalable to your needs

You are not bound to what you choose and can easily delete or add *virtual machines* as your user needs change or busy season arrives. The beauty of cloud services is that they are scalable to your needs, allowing your fair to change the number of *virtual machines, the power (size),* and how many hours each machine is expected to run each day.

Running ShoWorks in both the Cloud and locally

Keep in mind that there is no additional charge for installing and using ShoWorks on machines that are NOT in the cloud. This means that the fair can mix-and-match platforms, using ShoWorks installed locally on traditional physical desktop machines that are hard-wired in your office, and only using cloud *virtual machines* when the benefits above are needed. Note, data cannot not be exchanged in real-time between ShoWorks ran locally on physical machines, and ShoWorks ran on *virtual machines* in the cloud. That is, the two environments should not be ran simultaneously. In this case, the user should choose one environment at a time, allowing time to copy their data file from environment to the other before switching. Still, this hybrid setup makes good sense in that it allows for cases when the internet become unavailable – common during large events according to Murphy's Law. This best-of-both-worlds" ability to manage your entries ensures your fair is completely covered for all scenarios.

Examples of Time Costs*

The following scenarios are examples to illustrate estimated costs for various needs. *Pricing is as of 10/15/2023 and does not include any significant data storage costs. Always check Microsoft for the latest up-to-date pricing.

Small fair, light usage

A fair that only needs one user to access ShoWorks from anywhere and use about 8hrs each day during the fair and shoulder times of two weeks total.

1 virtual machine, running 8hrs/day for 2 weeks: \$0.15 x 8 x 14 = \$16.80 Total Virtual Machine Time Cost for Fair Year

Small fair, one power user

A fair that only needs one user to access ShoWorks from anywhere, and with continual uptime running 24/7 during the fair and shoulder times of two weeks total.

1 virtual machine, running 24hrs/day for 2 weeks: \$0.15 x 24 x 14 = \$50.40 Total Virtual Machine Time Cost for Fair Year

Mid-sized fair, multiple users, one power user

A fair with multiple users needing access to ShoWorks from anywhere, with one virtual machine running continual uptime 24/7 for one month, and 2 additional users needing spot access to separate virtual machines available 8hrs each day for two weeks.

1 virtual machine, running 24hrs/day for 1 month: \$0.15 x 24 x 31 = \$111.60 2 virtual machines, spot instances, running 8hrs/day for 1 month: \$0.016 x 8 x 31 x 2 = \$7.94 **\$119.54 Total Virtual Machine Time Cost for Fair Year**

Large fair, multiple users, one power user year-round

A fair with multiple users needing access to ShoWorks from anywhere, with one virtual machine running continually year-round, and 10 additional users needing spot access to separate virtual machines available 8hrs each day for one month.

1 virtual machine, running 24hrs/day for 1 year: \$0.15 x 24 x 365 = \$1,314.00 10 virtual machines, spot instances, running 8hrs/day for 1 month: \$0.016 x 8 x 31 x 10 = \$39.68 **\$1,353.68 Total Virtual Machine Time Cost for Fair Year**

Setting up ShoWorks Anywhere

Creating an Azure subscription

A Microsoft Azure account is required to host the cloud environment. Microsoft offers a free 30-day trial period which may be sufficient for some fairs to make a trial run during their actual fair. After the trial period, one has the option of moving as a "Pay as you go" plan which can be canceled at any time. Sign up and more pricing information can be found at <u>https://azure.microsoft.com</u>

Creating your Azure Cloud environment

Factors to think about before creating a Virtual Machine

- Spot instance or regular instance (see prior topic "Pricing per hour")
- Size (power) of the virtual machine.
- Availability (will the machine be running 24/7)

Once you have created a Microsoft Azure account (subscription) and decided on how many and what kinds of *virtual machines* you need, you can login to the Azure portal and ultimately create your *virtual machines*.

You will first create and provide a name to your own cloud environment. This is called a "**resource group**" and you will later refer to this group when creating further resources to store and use. Think of a "resource group" as an office building in the cloud, where you keep a network of all your computers. These computers, called *virtual machines*, will be virtually linked together with what is called a *virtual network*. You will also give a name to this *virtual network*, as well as a unique name to each *virtual machine*.

A resource group contains a virtual network, which contains one or more virtual machines of Windows 11, each having ShoWorks installed. If you have more than one virtual machine, you will designate one machine (usually one that is going to run 24/7) to host your ShoWorks data file in a shared folder – just like a normal, physical local area network (LAN). All virtual machines will open this same, shared ShoWorks data file.

Steps

Create a Resource Group

When logged in to the Microsoft Azure portal at <u>https://portal.azure.com</u> choose **Resource groups** from the left hand sidebar and then **Create**. Provide a name such as "Trident-County-Fair-RG" and select a geographic region. It is ideal to select a region that corresponds to where you are physical located.

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Create a Virtual Network

From the same left sidebar, choose **Virtual networks** and then **Create**. Make sure to select the Resource Group name that you created in the prior step and the same geographic region. Provide a name such as "Trident-County-Fair-VN". Choose **Review + Create** as you do not need to select any further options.



Create Virtual Machines

Once you have created a virtual network, you can create one or more *virtual machines* based on the needs that you have determined in the prior topic. From the same left sidebar, choose **Virtual machines** and then **Create** then **Azure virtual machine.**



Many of the options in this section will be left at their default unless you are an Azure expert or technician who understands and needs variations of the options available. Unless mentioned, for simplicity these instructions will assume that you leave any unmentioned option at its default value.

Make sure to select the same *Resource Group* name that you created in the prior step and the same geographic region.

Provide the *virtual machine* with a unique name, ideally easy to remember and not too long or complex. If you are creating more than one virtual machine, you may choose to add a number in the name so that you can easily refer to each virtual machine later, such as "VM01".

Change the *Security type* to **Standard**.

Change the *Image* to the latest Windows Pro version (Windows 11 Pro Gen 2 or Windows 10 Pro Gen 2).

You may or may not choose to *Run with Azure Spot discount* (see above topic).

Select a *Size* that suits your budget and needs (see above topic). Click the link *See all sizes* to see a list of all available sizes and the hourly costs for each. Many different sizes are available. To reduce clutter, it is recommended to filter the list so that you can see only sizes relevant to ShoWorks needs. Do this by clicking on the filter buttons at the top of the table to see All *vCPUs* and only *RAM* sizes from 8GB to 32GB. *Display Hourly* so that the cost per hour is visible.

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Choose a machine size that represents the minimum requirements for ShoWorks, which is 8GB of RAM but ideally 14GB or more for best results or if the virtual machine will be hosting the data file for multiple users. The following highlighted sizes are recommended choices.

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Enter a Username and Password for this virtual machine and make sure to properly record these values.

Once you have agreed to the Windows licensing, choose Next: Disks

Change the *OS disk type* to **Standard SSD (locally redundant storage)**. You may optionally choose Standard HDD for a slightly lower performance.

Choose **Next: Networking** and make sure that your *Virtual network* which you created in the prior step is selected and then leave all default values of the remainder options, and choose **Next: Management**

Place a check in the box *Enable auto-shutdown* and choose a time of day or night that the *virtual machine* will automatically shut down if you do not shut it down manually. Many will choose a late night time like 3am. You may leave this unchecked if you want the *virtual machine* to run 24/7 however hourly charges will apply when the machine is running.

Choose a *Time zone* that is reflective of your actual time zone.

It is strongly recommended to change the *Patch orchestration* options to **Manual updates** to prevent unwanted delays when needing quick access to the *virtual machine*.

You are now finished with configuring the *virtual machine* and can choose **Review + Create** or optionally follow the remainder buttons, leaving all options at their default.

The new *virtual machine* creation will take a minute or two to generate and will now be listed in the list of Virtual machines.

You may optionally create more *virtual machines* repeating the previous steps.

Understanding the Virtual machines control panel

The Virtual machines control panel (page) will be the main panel that you use when starting and stopping your virtual machines. Here is where you can check the status if a machine is **running** or **stopped**. This is analogous to a physical machine being powered on or off. You will not be charged for hourly time when a machine is stopped (only a minor amount for the data storage). You may also delete a *virtual machine* from this panel.

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Accessing Virtual machines

Starting a virtual machine

To start a *virtual machine*, either place a check in the box beside the virtual machine's name and click the **Start** button, or click the name to view the detail of the *virtual machine*, and then click the **Start** button. The startup will take a couple minutes. You can click the **Refresh** button to check the progress. Once the status changes to "Running", you will be able to connect to the machine.

Creating a virtual machine connection

A method called Remote Desktop Protocol (RDP) is used to connect to a *virtual machine*. This is a free app that is included with Windows or can be downloaded for a Mac, Chromebook, Android and other systems. This allows you to save a connection as an icon so that later you can simply double-click on the icon to connect to the virtual machine.

From the Virtual machine control panel, make sure that the *virtual machine* is in the **Running** status and if not, select the machine and click the *Start* button. Then take note of the *Public IP address* of the *virtual machine* that you want to access. This is a unique number that represents any single *virtual machine*. Think of this as the machine's phone number or identification number. Copy this number down and save it, along with the username and password that you created for the virtual machine in the prior steps.

There are two methods to creating the RDP connection icon. The method may vary among client operating systems that you are accessing the virtual machine with. This example is for Windows users:

Create the connection icon manually (preferred)

To create an RDP connection icon, from your client Windows machine, click *Start* and type **Remote Desktop Connection** and hit the Enter key. This opens the connection dialog. Click *Show Options* so that you can change some settings.

Create the connection icon automatically

Alternatively, you can create the connection icon from within the Azure portal. From the list of virtual machines, click the name of the *virtual machine* (a hyperlink) and then the *Connect* button. Then under the *Native RDP* panel, click the *Select* button. This will automatically check the connection (a few seconds), and then allow you to click the *Download RDP file* button. You will now see a new icon on your Desktop or downloaded files folder. Right-click on this icon and select *Edit*.

Connection icon options

In the *Computer* field, type or paste the **Public IP Address** of the *virtual machine* that you copied above. This should be in the format with 4 sequences of 1 to three numbers separated by dots (periods), followed by a colon and the number 3389 (the port number that is common to most RDP connections). An example of the format x.x.x.x:3389 would be 123.456.789.123:3389 or 12.345.67.890:3389. <u>You</u> <u>must include the colon and 3389</u>.

Optionally check the box *Allow me to save credentials* (or the box may be labeled *Always ask for credentials* which in this case uncheck the box).

Click the *Display* tab and change the *Display configuration* resolution to your preference. Ideally the resolution should be 1280 by 1024 pixels, but it is recommended to not exceed your physical monitor screen resolution.

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Connecting to a virtual machine

Double-click on the RDP connection icon that you made and saved in the prior steps. This may prompt you for a username if not already saved. You have an option to save this password so that you will not be asked again. You will now have a window of the desktop of the running virtual machine, running Windows, and can now treat this *virtual machine* as you would a normal, physical Windows machine, installing and running apps like ShoWorks.

Connecting multiple virtual machines in a virtual network

Using the steps above, you may create and run additional virtual machines for multiple users, all within the same virtual network. To allow the machines to "talk" to each other, you will perform identical steps as you would with a physical local area network (LAN) in your office. Simply decide which *virtual machine* will host a shared folder and place your shared files like your ShoWorks data file in this shared folder. This *virtual machine* that is now hosting your data file, should <u>not</u> be configured as a Spot Instance because it should not be unexpectedly interrupted since it needs to be running any time other users will need access to ShoWorks.

The following steps illustrate how to setup a shared folder, which also is the exact same steps performed on a traditional physical network:

From the host machine, create a folder on the C drive with a name such as "ShoWorks Data"

Right-click on this folder and choose **Give access to** (you may have to click **Show more options**) then **Specific people...**. Type the word "Everyone" in the box and click the Add button. Change the dropdown *Permission Level* from **Read**, to **Read/Write**. Click the *Share* button. Choose *Yes, turn on network discover and file sharing*.

Make note of the folder location so that you can refer to this when opening a file in this folder from another computer. The location will be in the format \\COMPUTERNAME\FOLDERNAME

Click the *Done* button.

You have now completed the cloud configuration.

Copying files to and from a virtual and physical machine

To copy a file (such as your ShoWorks data file) to and from a physical to virtual machine, simply copy the file by right-clicking on it and choosing *Copy*, or highlighting the file and pressing the Ctrl+C key combination. Then click in the location where you want to paste the file (on the other machine) and either right-click and choose *Paste* or press the Ctrl+V key combination. Time to transfer the file may vary depending on your internet speed.

Closing a connection and stopping a virtual machine

When you are finished working in a *virtual machine*, it is recommended to shut down the machine before leaving the RDP connection. Simply click the *Start* button within the Windows desktop *virtual machine* and **shut down** the machine as you would with a physical machine. Once this is done, the RDP window will close. You may now return to the Azure portal in a web browser and under the list of Virtual machines, select the machine and click the *Stop* button. Note, if you have configured the *virtual machine* to **auto-shutdown** at a predetermined time, this will automatically occur. Your machine time billing will cease once a machine has been stopped.

Running ShoWorks Anywhere

You will treat your newly setup cloud environment in the same functional way as a local area network of machines running ShoWorks yet having all the benefits described earlier. Simply install ShoWorks on the *virtual machine*(s) and open a common data file that is in a shared folder from the designated host *virtual machine* as described above.

Licensing implications

ShoWorks license

ShoWorks licensing remains the same regardless of use on a *virtual machine* or physical machine. For example, if you have the Standard Edition of ShoWorks with 4 licenses, you can install ShoWorks on a total of 4 machines, whether all virtual, all physical or a mixture of both. As always, you can manage your licenses from the ShoWorks website under **My Account**, then **Manage Activations**. An advantage of *virtual machines* is that they can easily be deleted and re-created, allowing you to deactivate the ShoWorks license on the machines to free up new license for newly created machines.

Microsoft Windows license

Microsoft includes limited licenses of Windows Pro 10 and 11 in most Azure subscriptions. Check with Microsoft for more information.

Microsoft Office license

As with all versions of ShoWorks, Microsoft Office (Microsoft Access) is not required to run ShoWorks, however does provide added benefits to advanced customization of ShoWorks. Microsoft Office (also referred to as Microsoft 365) can be installed on virtual machines in the same way as on physical machines. You are responsible for maintaining your Microsoft Office licensing agreement. For non-profit institutions, Microsoft offers a significant discount for Microsoft licensing. For more information, visit https://www.techsoup.org/microsoft

Further implications

Do's and Don'ts

After extensive research, development and feedback from trial users, we have compiled a list of recommendations to improve your experience when using ShoWorks Anywhere.

Do

- Make your virtual machine **Display Size** (screen resolution) slightly smaller than your actual physical display monitor resolution to accommodate the full screen of ShoWorks yet distinguish from your actual physical desktop. This allows you to maximize ShoWorks within the virtual machine window and treat the window as a single application. You can only change the Display configuration resolution when a virtual machine is in the stopped state. Do this by right-clicking on your RDP icon that you setup and selecting **Edit**, then **Display**. The best resolution is between 1280x1024 to 1920x1200.
- Unless you have security concerns beyond the norm, you may save the login credentials to the virtual machine so that you only have to double-click on the RDP icon to open the *virtual machine* and begin working in ShoWorks within seconds.
- You can optionally make ShoWorks launch and maximize to the full *virtual machine* window upon its startup. This makes ShoWorks Anywhere, a one-click action from the icon. To configure this:
 - Start the *virtual machine*
 - Click the Windows *Start* button on the *virtual machine*, and type **run** and hit the Enter key.
 - Type **shell:startup** and click *OK*.
 - Copy and paste your ShoWorks program icon into this folder.
 - Right-click on the pasted ShoWorks program icon and choose Properties
 - In the *Run:* drop-down, choose **Maximized**.
 - Click OK.
 - Restart the *virtual machine* by clicking the *Start* button again and then *Power*, then *Restart*.
 - ShoWorks will now start and run maximized each time the *virtual machine* is started.
 You may need to wait a few seconds for ShoWorks to automatically load.
- Use the Auto-shutdown feature to avoid unnecessary incurred costs for running virtual machines when forgetting to shut them down. To verify or change this function, login to the Azure portal and click *Virtual machines* to view the Virtual machines control panel. Click on the name of the *virtual machine* (hyperlink) and scroll down to the section *Auto-shutdown*. Click this link to change the settings.
- Though the cloud is highly reliable for uptime, it is wise to routinely backup your data file to your own physical machines locally. Simply copy and paste your data file to and from the machines, using the steps provided earlier, or the Backup function with the cloud option in ShoWorks.
- You may freely delete unused *virtual machines*, assuming that your data has been backed up. This reduces storage costs.
- When you are finished using a *virtual machine*, Make sure to not only "shut down" the machine from within Windows (Start>Power>Shut Down), but also "stop" the *virtual machine* from the

portal by clicking the checkbox next to it and clicking the Stop button. Unless a machine has been "deallocated"/stopped, you will be charged for the hourly rate of that machine.

Do not

- Don't attempt to share a live ShoWorks data file from the cloud (*virtual machine*) to a physical computer while it is in use. The ShoWorks Anywhere concept assumes that your data file is being shared either by ShoWorks 100% in the cloud or 100% locally. You may switch back and forth between the environments, but they cannot be sharing the same data file when running.
- Do not forget to both shut down and stop (deallocate) a virtual machine when it is not in use, or at least ensure that the Auto-shutdown feature is enabled. Remember, you not only must "shut down" the machine from within Windows (Start>Power>Shut Down), but also "stop" the virtual machine from the portal by clicking the checkbox next to it and clicking the Stop button. Unless the virtual machine is hosting a shared data file when another virtual machine needs access, or you have planned for the virtual machine to be running 24/7, there is no need to incur time charges for an unused running virtual machine.
- Avoid running Windows Update on a virtual machine unless instructed by a technician. Since the machine is only running ShoWorks, there is a low likelihood that the machine will need updating during the course of a fair season.

FAQs What is ShoWorks Anywhere?

ShoWorks Anywhere is a term used to describe the placement of one or more ShoWorks 2024 desktop instances in the cloud. The functionality and user interface of ShoWorks remains unchanged from its locally installed version, providing cross-use efficiency between the two platforms.

Which version of ShoWorks is supported in ShoWorks Anywhere?

Only ShoWorks 2024 is 100% supported for cloud instances. ShoWorks 2020 is not supported.

How much does ShoWorks Anywhere costs?

There are no additional fees paid to ShoWorks. You do have a Microsoft Azure subscription fee with charges for the time that virtual machines are running and stored, but this cost is usually negligible and Microsoft offers a free 30-day trial. See the topic on Costs for more information.

What features are absent from ShoWorks Anywhere?

All features that are available in your familiar ShoWorks desktop application are available in the cloud environment.

Why would I want to run ShoWorks Anywhere in the cloud?

ShoWorks Anywhere provides benefits of accessibility from anywhere, on any type of machine, at any time. This not only enhances speed but relieves dependency on hardware investments like computer compatibility and network requirements. Only a light internet connection (Wi-Fi is supported) and any kind of computer is needed (Windows, Mac, Android, Chromebook, etc.).

When would I NOT want to run ShoWorks Anywhere in the cloud?

Most fairs have reliable internet services. Because your fair has a period of time sensitivity and accessibility is critical, you might want to have the traditional ShoWorks available on your local machines just in case you lose internet connectivity in your area (which is out of the control of Microsoft or ShoWorks).

How long does it take to setup ShoWorks Anywhere in the cloud?

Usually one-hour to setup a new Azure subscription and create multiple virtual machines and a network with ShoWorks installed. This only needs to be done once.

How fast is one able to connect to ShoWorks Anywhere?

Once ShoWorks Anywhere has been setup in the cloud, the startup time of a ShoWorks user instance can be as little as 5 seconds. In the case of stopped/deallocated machines, a user may need to wait a minute or two to begin.

Does ShoWorks provide technical support for Microsoft Azure?

No. While the setup and configuration of ShoWorks Anywhere is supported by this whitepaper, technical and billing questions on or about the Microsoft Azure environment are directed to Microsoft.