

USING THE INTERNET WITH A DREDGE TO IMPROVE OPERATION AND SUPPORT

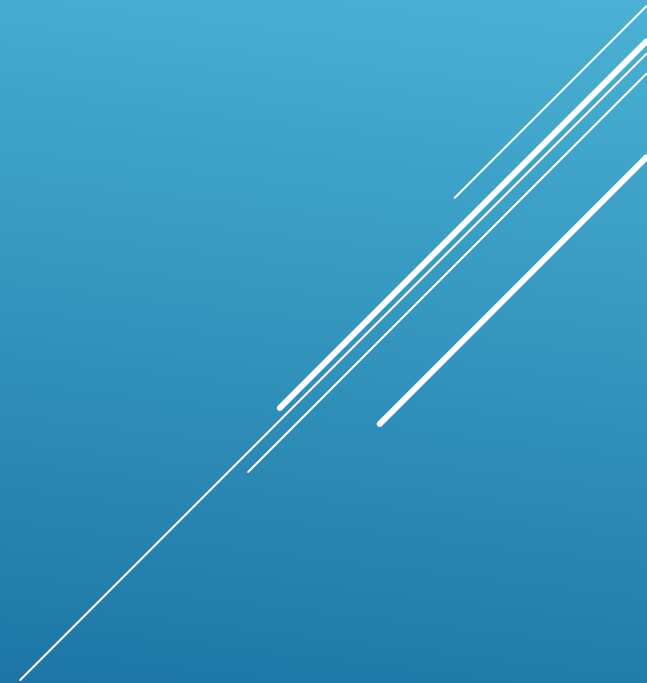
Jerry Knisley
Technical Support
HYPACK, Inc.

- ▶ I have worked for HYPACK for the past 16 years in the Technical Support department. Prior to that I spent 9 years in the US Navy.
- ▶ For the majority of that time I have been involved quite heavily in dredge support.
- ▶ I helped develop the DQM support at HYPACK, during many hopper certifications I am involved in resolving any discrepancies.
- ▶ I have installed and supported all types of dredges including:
 - ▶ Cranes, Excavators, Cutter Suction and Hopper dredges

MY BACKGROUND

- ▶ The use of the internet was limited in the beginning and required an air card and a separate cost for the software to allow the connection.
- ▶ Around 2009 eTrac Engineering began installing air cards on the dredges that they helped support. This allowed remote access to the dredge to troubleshoot and maintain DREDGEPACK.
- ▶ Also in 2009 the software available to log in remotely was limited and slow.
- ▶ Today most dredge companies either have their own remote support tools installed or use the built in TEAMVIEWER program with HYPACK.

THE BEGINNING OF THE USE IN DREDGING



- ▶ In 2009
 - ▶ The use of remote support was limited to a few customers which limited the frequency of its use.
 - ▶ Almost every remote connection was to a dredge within the United States.
- ▶ In 2013
 - ▶ The widespread availability has made remote support a daily occurrence.
 - ▶ Remote support is world wide and has transitioned to the survey community as well.
 - ▶ Last week remote support was provided by the same technician to a dredge in Louisiana as well as a dredge in Ireland on the same day.

FREQUENCY OF REMOTE SUPPORT

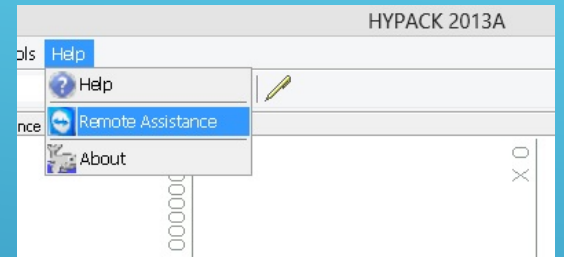
- ▶ 1. Allow remote troubleshooting of computer problems.
 - ▶ Sometimes it is better to see what is happening rather than be given a description.
 - ▶ During a recent hopper certification, the DQM inspector was troubleshooting a difference in the value provided to DQM and what he computed. With remote support HYPACK was able to make changes to the software and upload it to the dredge while the inspector was onboard.
- ▶ 2. Allow remote modification to dredge project
 - ▶ Upload project files such as a new survey or map
 - ▶ Download data from the dredge for analysis such as the DQM backup files or recorded dredge data
- ▶ 3. Allow remote monitoring of dredge system
 - ▶ Data can be viewed real time so that a remote location such as a field office can log into a dredge and see when it will arrive or what is currently happening on the dredge.

WAYS THE INTERNET IS USED IN DREDGING

- ▶ Recently a dredge company contacted HYPACK Support in regards to a problem with load data on a hopper dredge. Due to the availability of this companies remote support program, a technical support representative was able to log on, retrieve the DQM backup files and diagnose that the issue was over an incorrect load number.
- ▶ That particular problem was logged to DQM for 10 seconds and quickly corrected by the onboard personnel.
- ▶ Without remote support, instead of having those files practically instantly after it was reported to support, and a resolution in a few hours. Someone would have to travel to the dredge and email the files.

AN EXAMPLE OF REMOTE SUPPORT

- ▶ LOGMEIN.Com. User must create an account
- ▶ Gotomypc.com The user must have an account and load the software
- ▶ Showmypc.com. User can initiate without loading anything but is limited in the features available.
- ▶ Teamviewer. User can download the program and install or initiate connection through help in HYPACK.
- ▶ There are several other connection programs, however these are the most commonly used in my experience.



KEY FEATURES OF THE VARIOUS CONNECTION PROGRAMS

- ▶ Daily rate of an onsite support person: \$1500.00
- ▶ Travel Expenses:
 - ▶ from CT to New Orleans \$500.00 Airfare
 - ▶ Rental car roughly \$50 per day
 - ▶ Hotel about \$150 per day
- ▶ Down time generally has repercussions beyond the financial costs
- ▶ A typical 3 day visit can cost over \$5000.00

TYPICAL COST OF A SITE VISIT

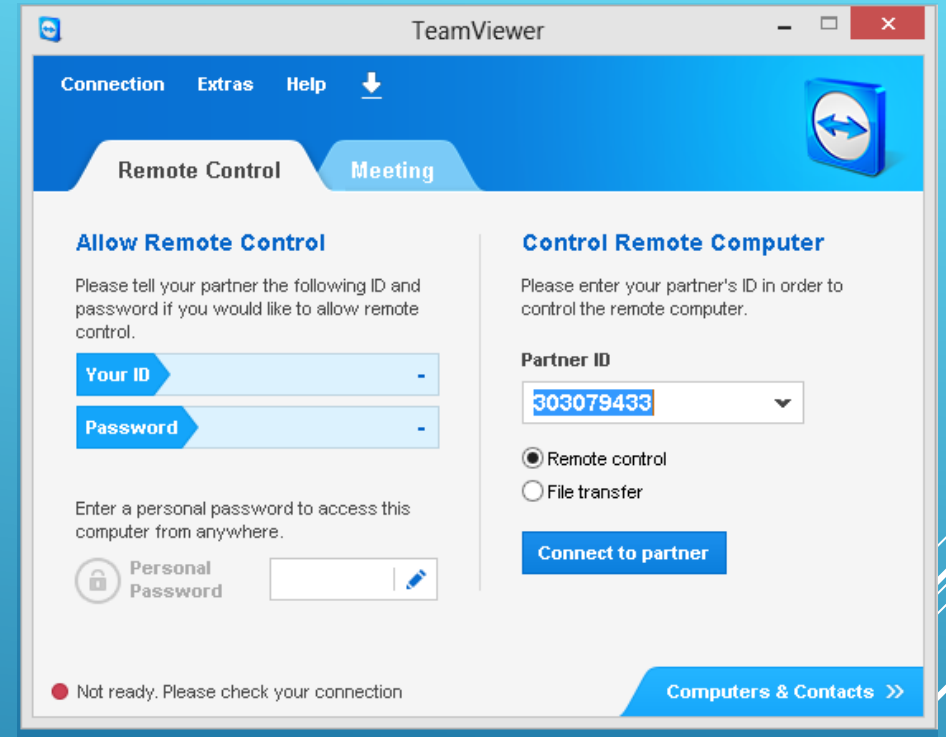
- ▶ \$50.00 per month = \$600.00 per year
- ▶ All of the major cell phone companies have comparable priced plans.

CURRENT RATES FOR AN AIR CARD



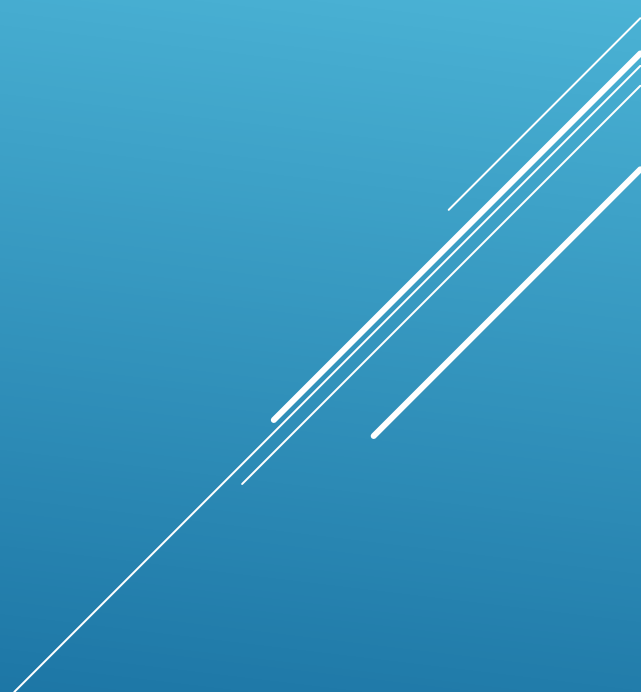
- ▶ Due to the requirement that the dredge computer is connected to the internet, simply disconnecting the internet removes access.
- ▶ With TEAMVIEWER the user initiates a connection and must provide the user id and unique password generated for each session.
- ▶ When a user initiates the connection, they must authorize access.
- ▶ Most connection programs display what background functions are being performed so the user can see if a file is being copied or inserted.

SECURITY OF CONNECTION



- ▶ On most dredges the inclusion of the internet is not a distraction to the dredge operator.
- ▶ Software is available to limit what the computer can do on the internet if the availability becomes a distraction.
- ▶ Several dredge companies will remove the air card from the dredge when it is not needed and only bring it onsite when remote support is desired.

CONSIDERATIONS WHEN CONNECTING A DREDGE TO THE INTERNET



- ▶ The biggest limitation is that the remote support personnel cannot make hardware changes or check device operation
- ▶ Physical conditions that may contribute to the problem will not be identified without going to the site and viewing the conditions.
 - ▶ Occasionally there are wires crossed or settings on the equipment that the support personnel would have access to if they were on site.

LIMITATIONS OF REMOTE ASSISTANCE

- ▶ When working with an RTK GPS, corrections can be received via a VRS network instead of mounting a base station.
- ▶ As stated earlier, remote viewing of the dredge is possible. Several of the connection programs have a view only feature that allows the remote computer to view but not modify the dredge computer.
- ▶ DQM data can be transmitted over the internet.
 - ▶ On a recent crane installation DQM received bucket files via a FTP transfer over the internet.

OTHER USES OF THE INTERNET

- ▶ Remote assistance is not the best answer in all cases. Some problems will require a site visit.
 - ▶ In our experience the system can also be abused if a customer finds that remote assistance is available, they will occasionally use it when proper training would have prevented the problem.
- ▶ The use of the internet on a dredge project should be viewed as a viable means to maintain the software via remote support.
- ▶ The cost of supplying an air card to a dredge project, while relatively inexpensive, can help to avoid major costs if a problem presents itself.
- ▶ In my experience remote support can be a useful tool. As more companies add this option the ways the internet is used onboard will grow from the limited list provided here.

CONCLUSION