Graphical Access to IU's Supercomputers with Karst Desktop$^{\text{Beta}}$

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Show of hands

Who here has...

- Run statistical applications on laptop
- Run statistical applications on IUAnyware
- Heard about Karst Desktop
- Used Karst Desktop
- Used supercomputing resources at IU or elsewhere
- Used the command line
- Something specific about Karst Desktop that you’d like to know today?
Background

• Both personal and supercomputing started off being not user friendly
• HPC and computing in general used to be available only for specialized applications
• Computing has become cheap and more widely available
• Diversity of applications and users has exploded
• 250+ disciplines and sub-disciplines at IU use supercomputers
• The HPC user interface has not kept up with user expectations
Computing UX Evolution

Personal Computing

Supercomputing
Karst Desktop Beta – a gateway to HPC

- Research Technologies is always working on ways to make HPC more user friendly
  - Karst Desktop provides a new way to login and interact with Karst
  - You will see a GUI/desktop instead of a terminal
- We are using Thinlinc, a Linux remote desktop server based on VNC to provide this service
- Request a Karst account on IT Accounts to get a KD account as well
Karst Desktop Beta – a little compute on the side

• A convenient and better performing way to run GUI/statistical applications
• A much more user friendly gateway to HPC
  – If you only need a few cores (<5) to run long running tasks you can do it on the KD nodes (this might change!)
  – If you need many cores (>5) to run long running tasks, then you will have to go through the scheduler to use the compute nodes
• This is shared resource and is not a cloud and is not elastic
  – A window manager on top of dedicated hardware
  – Better performance
  – Variety of storage options
  – Larger memory
System Information

• 10 high memory nodes form the cluster, and there is a separate gateway node
• There is 256 GB of memory per node
  – Two 8-core Intel Ivy Bridge processors per node
• The gateway does the session placement, runs a basic load balancing scheme, keeps a DB of sessions, etc.
• There is a per process memory limit that is set to 75 GB
Features

• Provides a more user friendly interface than a terminal
  – Can think of this as a new front end
  – Provides file browsers and file editors
  – Can do a little compute directly on these nodes
• Graphical access to compute (indirectly)
• Works seamlessly compared to X forwarding
  – Addresses latency
  – Really great for GUI based applications
• Convenient data transfer options
• Supports long running tasks
  – **Ability to disconnect and reconnect to your session(s)**
Enables collaborations among researchers

One of our early users, Dr. Franco Pestilli’s research group has collaborators in Argentina, Japan and the US using GUI applications.
Featured apps on the Desktop
Features that help with productivity

- Disconnect and reconnect to your sessions
  - Session keeps running and is not paused
- Mount file system from your laptop on to the Thinlinc session
  - Conveniently move files around
- Copy and paste functions work between the Thinlinc session and your laptop
- **Supports SSH keys**
  - Will demo this today
Karst Desktop Beta Status

• The service is in public beta, launched in Oct 2015
• The place to start is the KB article: https://kb.iu.edu/d/bfwp
• You can log in if you have a Karst account
• 167 researchers have used the service since inception
• Users automatically added to a mailing list first login
  – Will keep you posted about the service
  – Generally 2 or 3 emails per month
Demo

- KB Document walkthrough
  - [https://kb.iu.edu/d/bfwp](https://kb.iu.edu/d/bfwp)

- Setting up Thinlinc Client
  - Connection settings
  - Screen Size setting
  - Authentication Settings
  - Exporting Local Drives
  - Reconnect Policy
  - Logging out vs Disconnecting
  - Monitoring your usage

- Anything else you would like to see?
Questions and Comments

- After what you've heard today, how do you think this is useful or not useful for you?
- Those of you who have been using the service already, feedback, comments, things that work and things that don’t work?
- Contact: karst-desktop@iu.edu

Training
- Unix Basics:
  - Wed 2/17/2016, 9:00 AM - 12:00 PM IUB Wells Library W144
  - http://go.iu.edu/Cqg
- Intro to HPC@IU:
  - Wed 2/17/2016, 1:00 PM - 5:00 PM IUB Wells Library W144
  - http://go.iu.edu/dGV
Not done.. Yet
First time setup walkthrough

• Download the suitable client for your OS from https://www.cendio.com/thinlinc/download
• Server: desktop.karst.uits.iu.edu
• Username: your IU username
• Password: your IU CAS password
• You will need an account on Karst (https://one.iu.edu/ > Create Additional accounts > Karst)

• WARNING:
  – Be sure to go through the options on the client app
  – Disable full screen mode under the “Screen” tab!
  – Mac users may not be able to go back to their Mac desktop without logging out or disconnecting
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