



**HDR Information Technology Group** | *Connecting Technology & Business*

# GPU-Enabled VDI and Rendering at Architecture and Engineering Firm HDR

Clint Pearson – HDR, Infrastructure Systems Lead

@ClintP22

# Main Points

1. Value of GTC Collaboration
2. Strategy Strategy Strategy!
3. Describe the HDR Traditional A&E Firm Work-Sharing Challenges
4. Strategy Strategy Strategy
5. HDR Status of Adoption Process for GPU-enabled VDI



KEEP

CALM

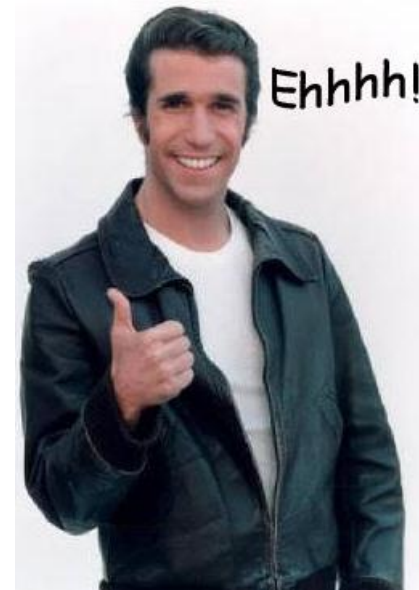
It's A

Small World

After All

## Disclaimers and Clarifications:

- A Fellow IT Admin, sharing experiences at work
  - not necessarily representing official HDR decisions / policies
- “I” means “we” ... No room for **Fonzi**, it takes a team!
- Sharing *our* vendor experiences, but not “selling” any
- A Fellow Admin, with new experiences *daily*!
  - Very open to corrections & clarifications.
- Sharing Limited Content:
  - More technical details are available
  - Ongoing collaboration is highly encouraged



# INTRODUCTION – some extra info

*What might we have in common?*

Clint Pearson

22 years of IT experience:

Army Aviation

DeVry University – KC, MO

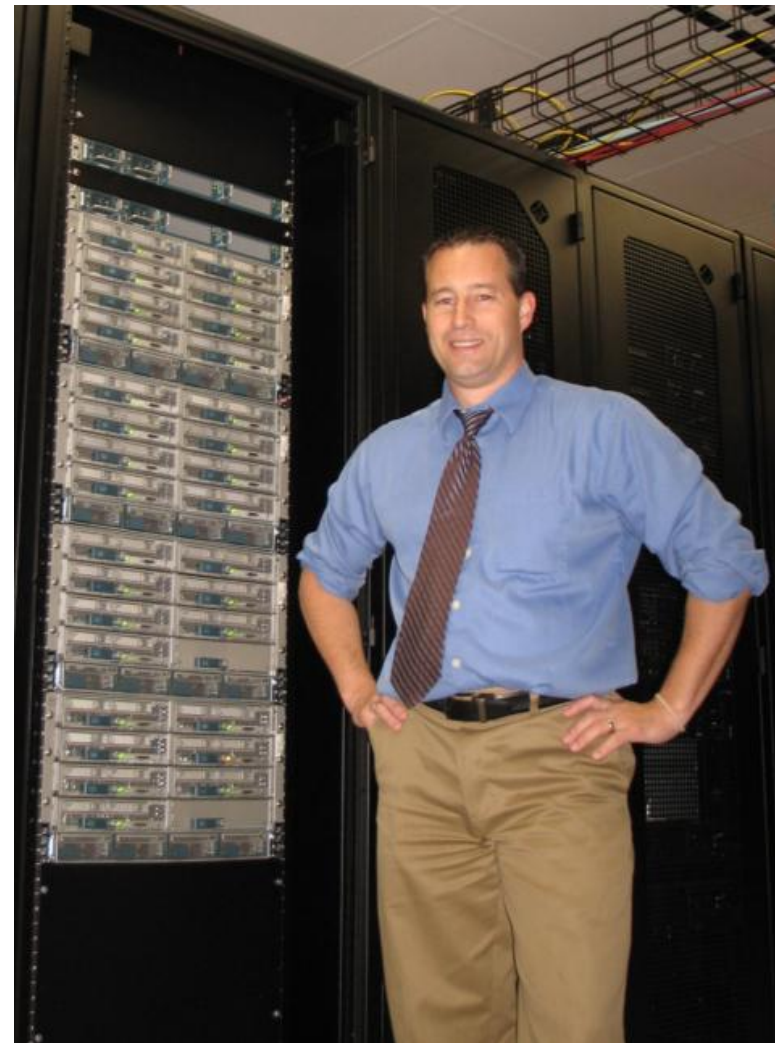
VTel – Austin, TX – the Novel Days

MACC – Blair, NE – SQL Admin

10th Year at HDR, IT Group

dba, sharepoint,

vmware, cisco ucs





# INTRODUCTION

Who We Are

What We Do

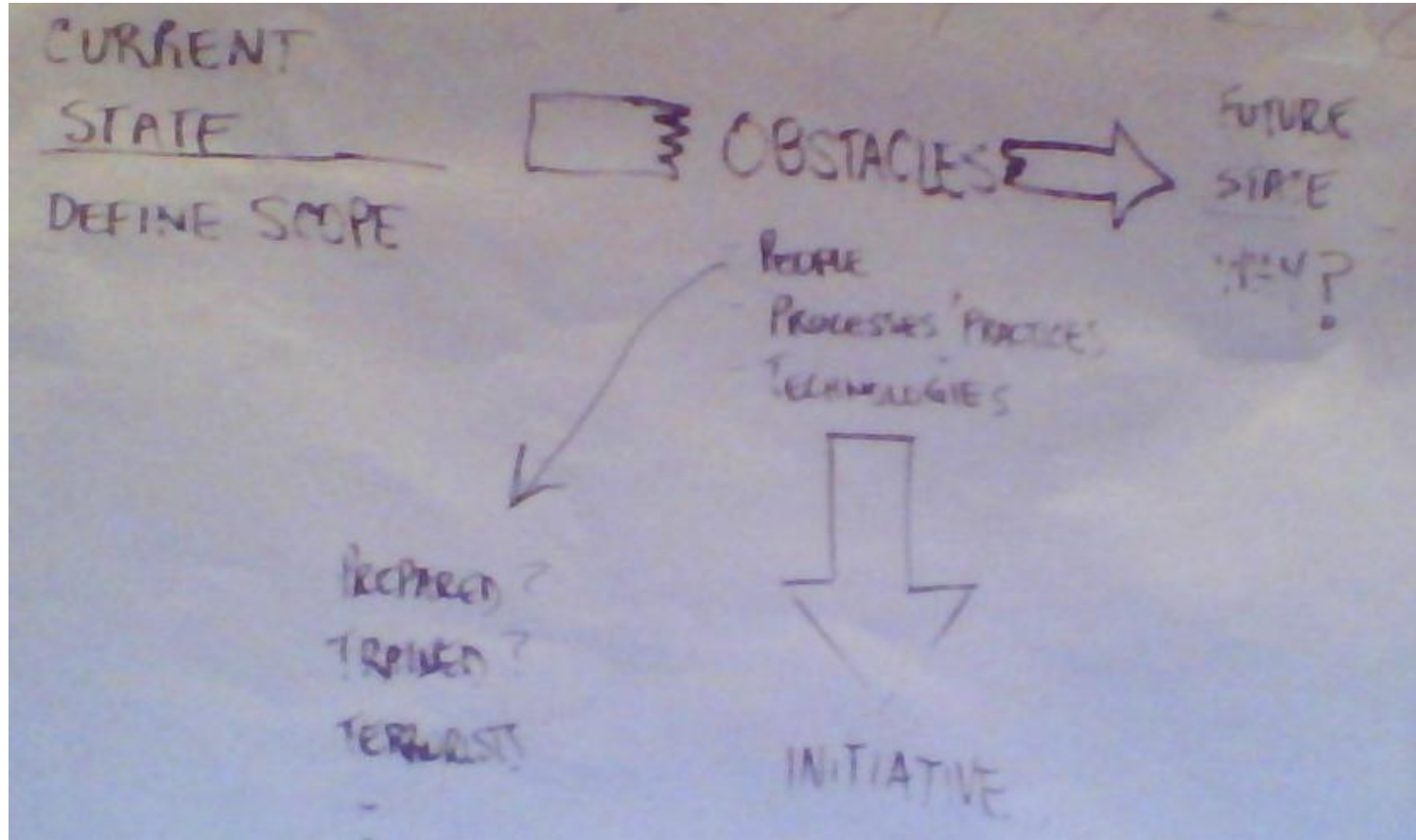


**NATIONAL CANCER INSTITUTE  
ADVANCED TECHNOLOGY RESEARCH FACILITY**  
FORT DETRICK, MARYLAND



2

# Strategy Strategy Strategy



# 3 HDR Traditional Work-Sharing Challenges

Current

Services

ASIA

EU

AFRICA

AUSTRALIA

- 
- 
- 
- 

limitations

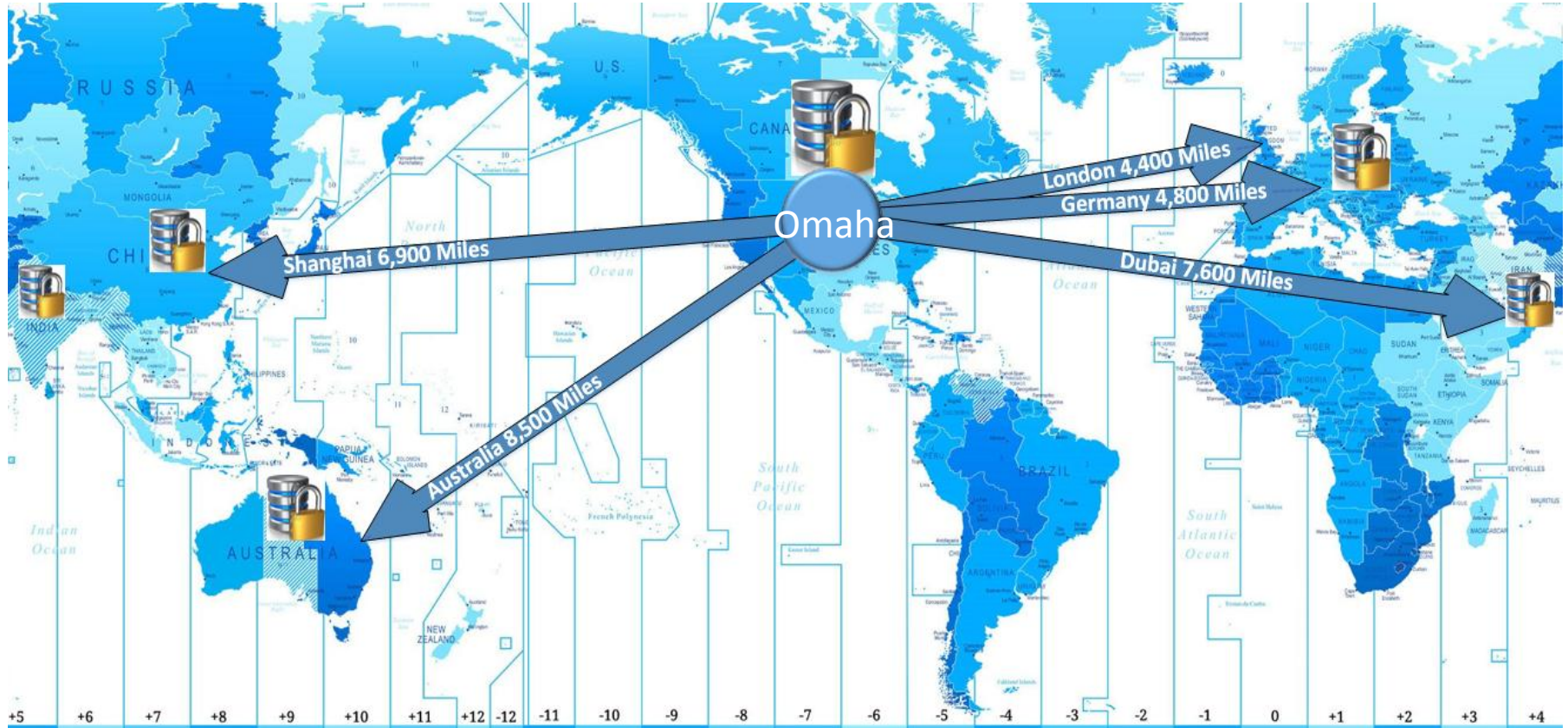
- Effective Work-Sharing Technologies limited to North America

# Challenges in Distance, Time Zones, and Security





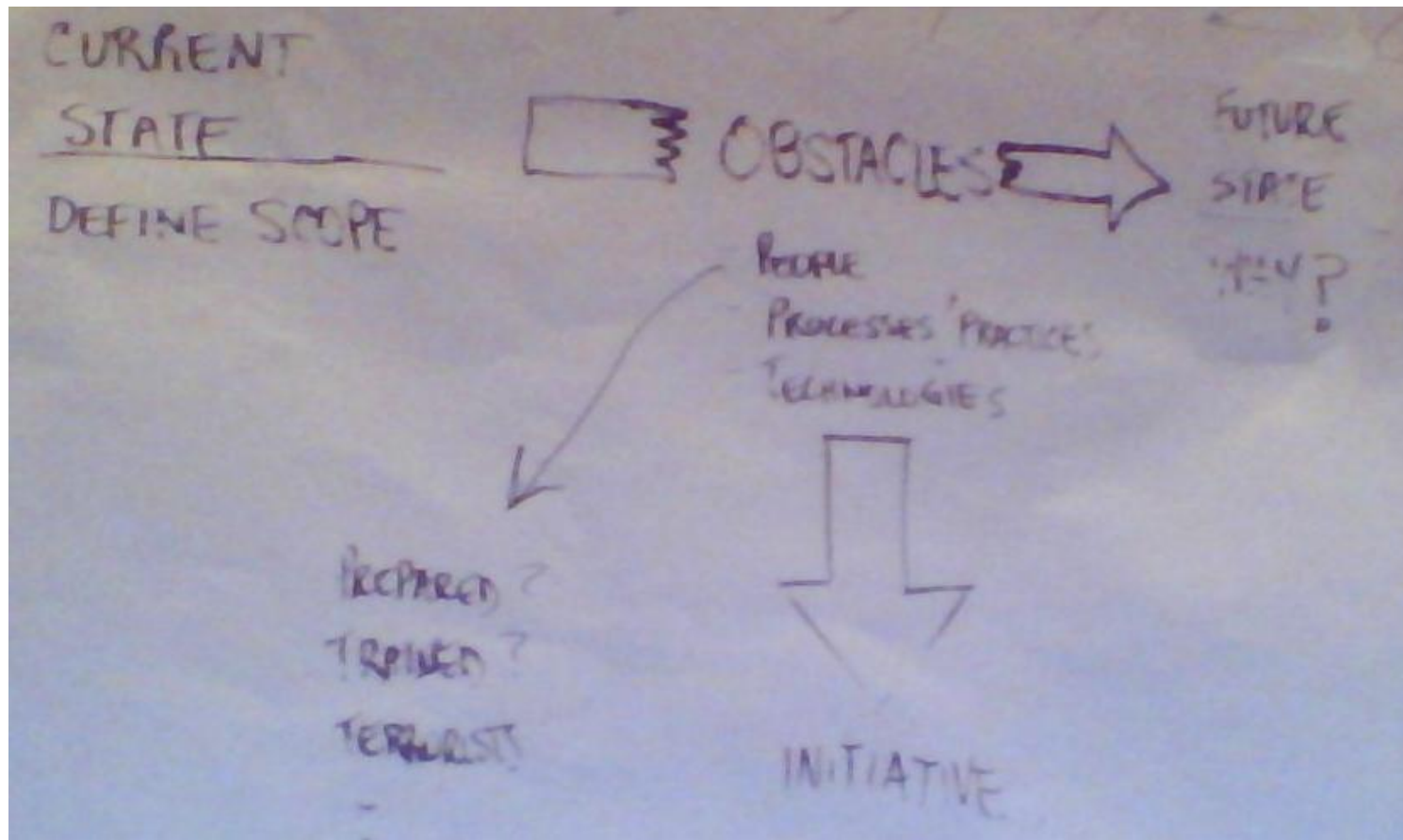
# Same Challenges *Increase* on a Global Scale



# 4

## Global Virtualization Strategy

From whiteboards to Reality



# Global Strategy



ITG Infrastructure

# Global Strategy Overview

## CURRENT STATE

- Predominantly North America ITG service model
- standards and processes
- documentation, procedures, training material (multi-lingual)
- HDR technology infrastructure for global needs
- Business global requirements left

**GLOBAL MATURITY** 

## DESIRED STATE

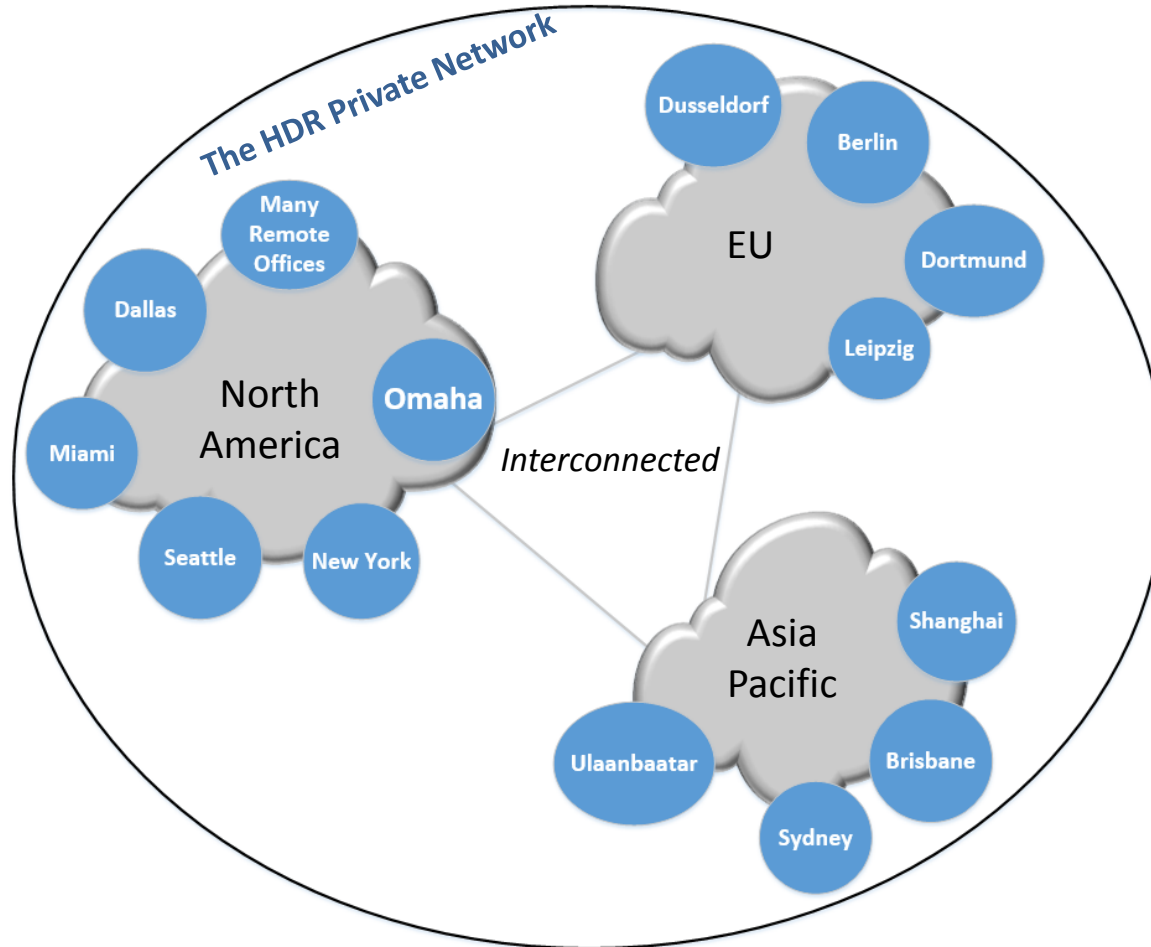
- Global ITG service model
- Documented /repeatable standards and procedures
- Multi-lingual quality program and best practices
- Adaptable systems, processes, and infrastructure
- Manage ITG investments against a global business roadmap

### **Common Risks | Opportunities | Obstacles**

- ✓ **Adaptability and capacity constraints of current systems**
- ✓ **Pre-existing acquisition environments**
- ✓ **Legal requirements and compliance**
- ✓ **Cultural/language differences**
- ✓ **Developing global business model**



# Regional Data Centers - Overview



## Services Provided

- VoIP
- Content Delivery - worksharing
- VDI - worksharing
- Project Data
- File Shares

## Circuits

- MPLS
- Internet & VPN
- Content Delivery Network
- Backups

# Global Infrastructure Services



# ITG Infrastructure Services Global Strategy Roadmap

Future State

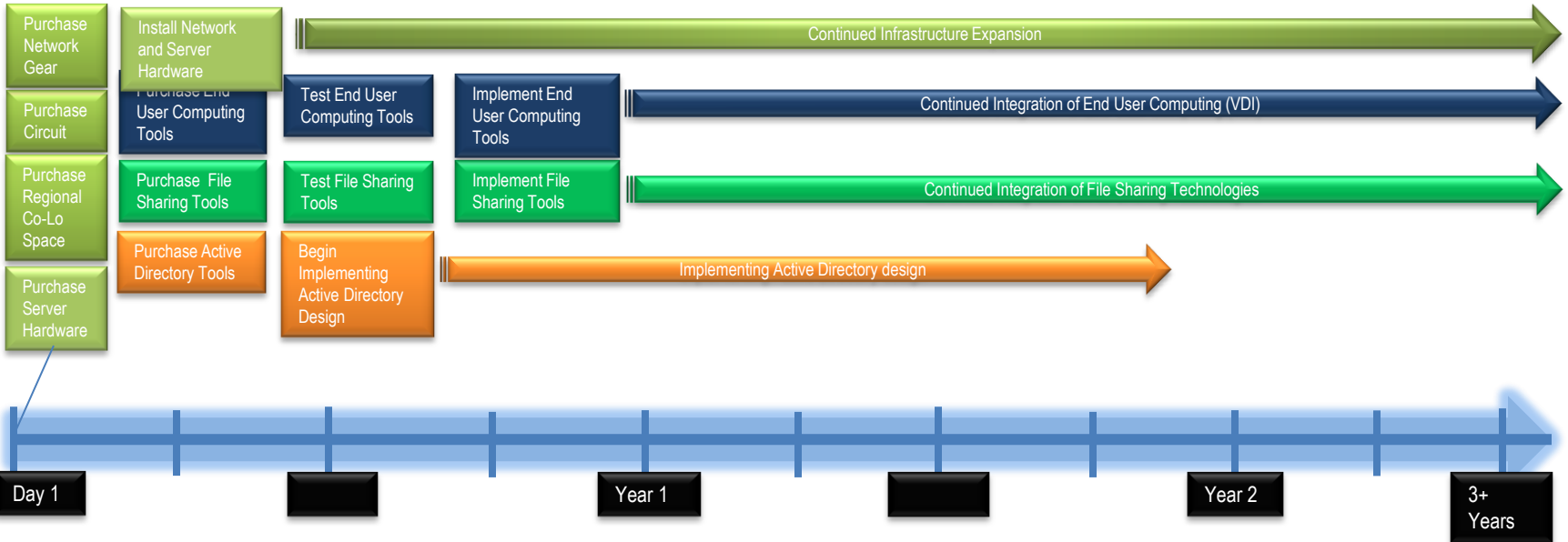
Foundational  
Infrastructure  
Rollout

File  
Transfer  
Software  
Integration

Beginning End  
Users Computing  
Globally

Infrastructure  
Expansion as  
Needed

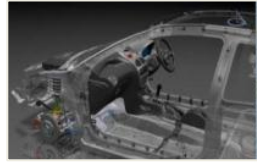
More End User  
Computing  
Adoption



## 5. HDR Status of GPU-Enabled VDI Adoption

- UPSIDE DOWN approach to VDI Adoption
  - Reaching for the "High Hanging Fruit"
- Conferences like NVIDIA GTC are a catalyst for visualizing new ideas and making them reality
- AEC Firm Collaboration
- An Early Adopter of GPU and VGPU Testing
- A New Project Driving **Urgency** of GRID Solution





DESIGNER

HDR 1<sup>st</sup> Fruit!



25M



POWER USER



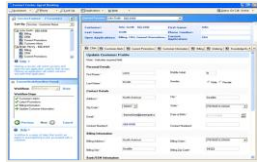
200M



KNOWLEDGE WORKER



400M



TASK WORKER



100M

Source: Gartner & NVIDIA 2012 Research

# Parkland Hospital – Dallas, TX

<http://www.hdrinc.com/portfolio/parkland-hospital>





# Penn**FIRST**

**Natalie Kostelni and John George**  
*Philadelphia Business Journal*

The University of Pennsylvania Health System has selected a team to help it construct a new hospital tower and, in another step forward, has issued a request for proposals for the demolition of Penn Tower.

[www.bizjournals.com/philadelphia/blog/real-estate/2015/01/penn-health-system-picks-development-team.html](http://www.bizjournals.com/philadelphia/blog/real-estate/2015/01/penn-health-system-picks-development-team.html)



# Penn**FIRST**





## University of Pennsylvania Health System Names Project Team For New Hospital

January 16, 2015 by Posted by Anne DiNardo, Senior Editor



The [University of Pennsylvania Health System](#) (Philadelphia) has awarded a contract to a team of companies for its new [Hospital of the University of Pennsylvania](#) facility.

The integrated project delivery team includes [Foster + Partners](#) (London), [HDR](#) (Omaha, Neb.), [Balfour Beatty Construction](#) (Dallas), and [L.F. Driscoll](#) (Philadelphia).

The project includes a new 700-bed complex on the site of the existing Penn Tower, which was originally built in 1975 as the Hilton Hotel of Philadelphia. The structure was acquired by University of Pennsylvania Health System and houses offices and clinics.



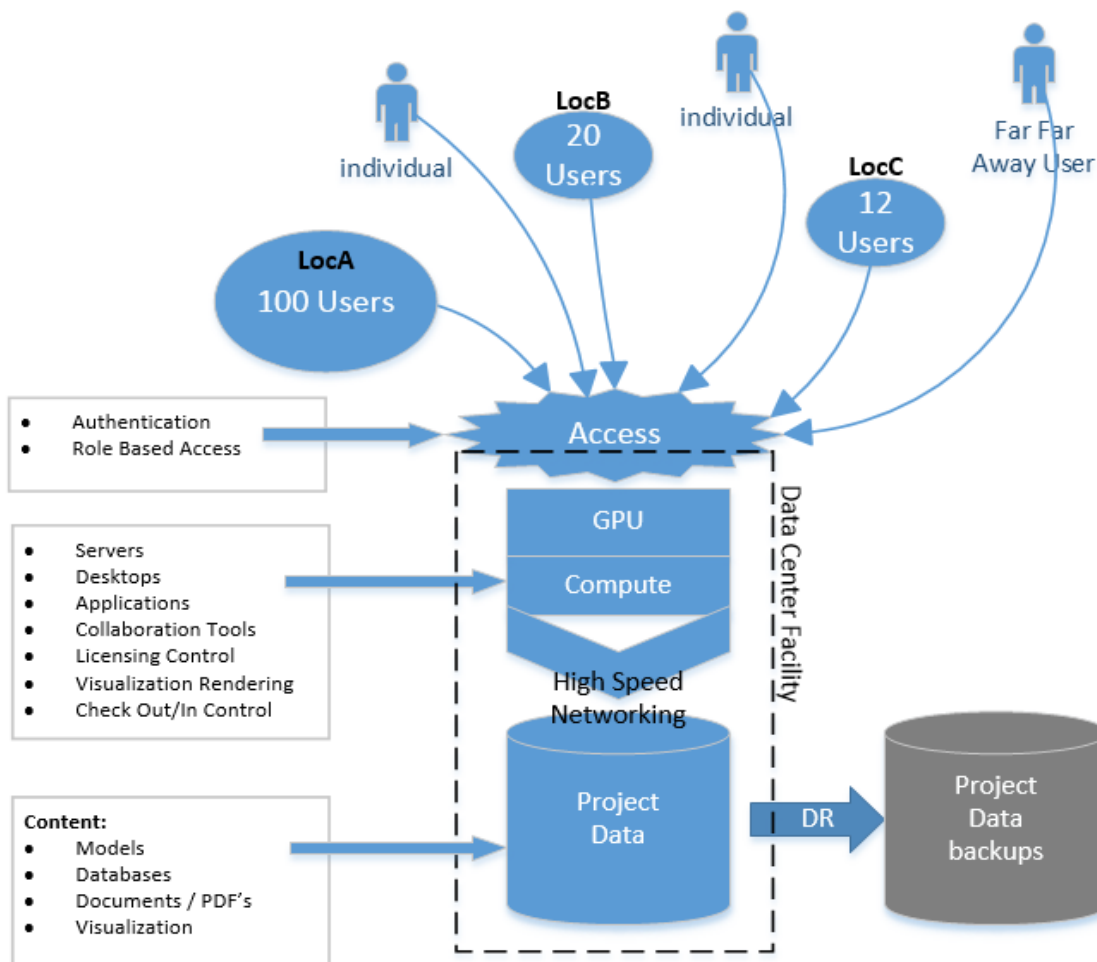
WIKIPEDIA  
The Free Encyclopedia

Article [Talk](#)

**Integrated project delivery**

From Wikipedia, the free encyclopedia

# The Ideal IPD Project Central



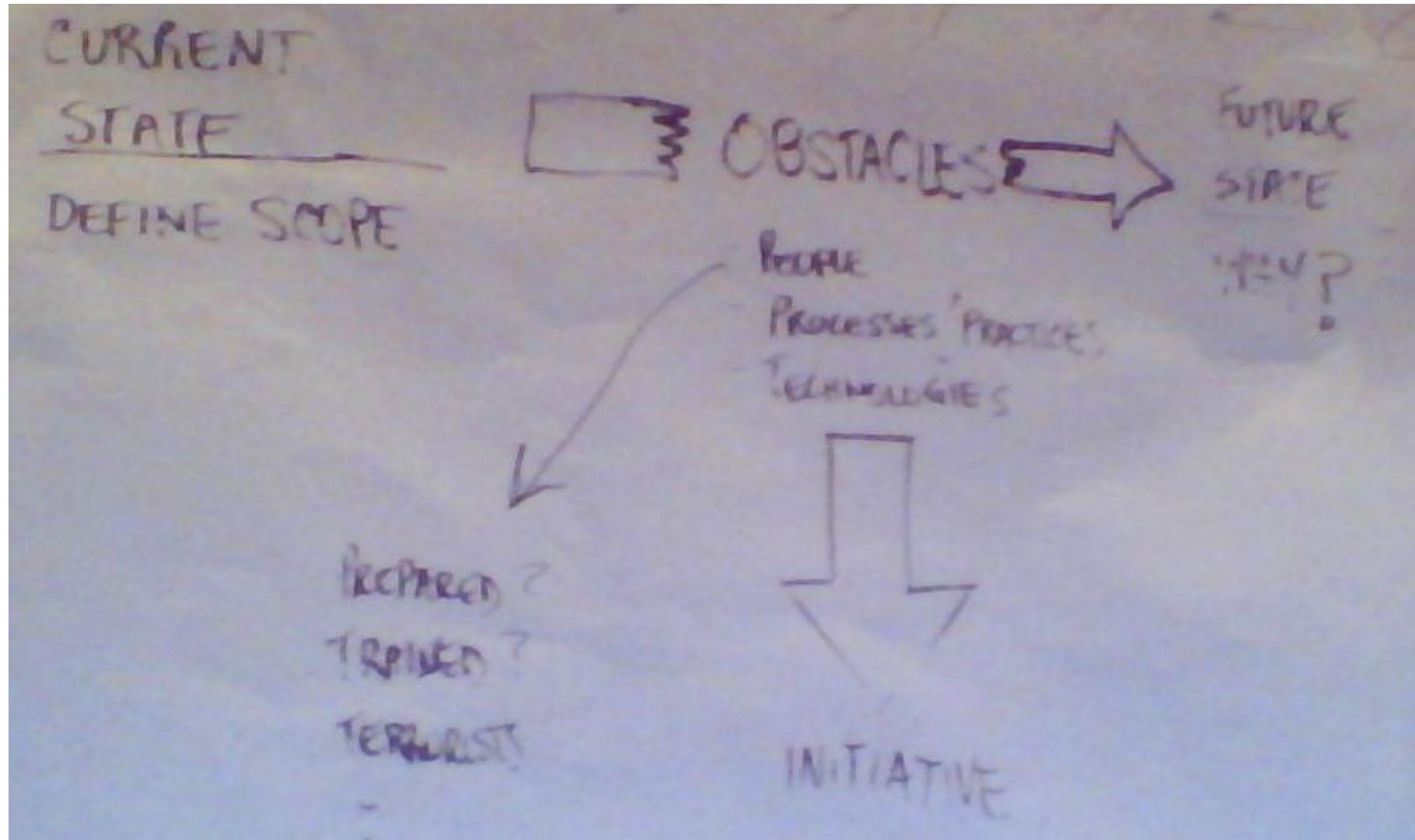
## Advantages:

- Work from Anywhere
- Work from Any Device (lower cost)
- Version Control
- Multiple Desktop Pools with Unique Tools (flexibility)
- Data Safety & Security
- Visualizations & Rendering Next to Project Data
- Check Out/In Control

## Obstacles:

- Distance Latency
- Licensing Challenges
- Users Need High Speed Internet
  - require assessment
- Printing Large Files
- Bleeding Edge Solutions, with currently evolving technology
- Infrastructure Cost

# Global VDI Strategy



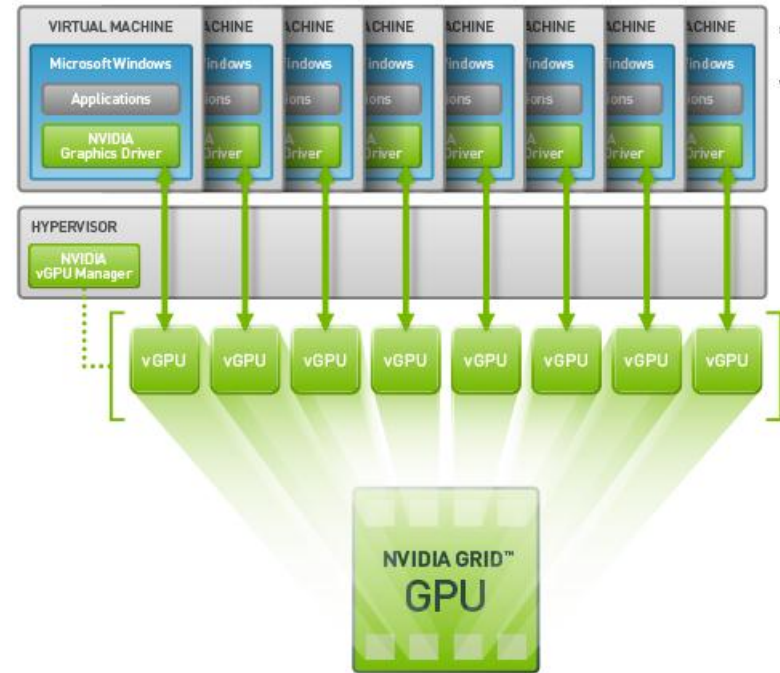
# Why we fight for VDI



- “Fight” ? or “Struggle toward”
  - means, “*not* taking the easy road”
  - not ignoring the problem, or outsourcing
- **Situational Background Info**
  - HDR is “Employee Owned” - We Care!
  - HDR was and is a VMware Shop (v2.5 → today)

# Timeline: HDR, VMware View, and vGPU

- 2012 Decision for VMware View
- 2013 GTC 2013 – NVIDIA helping
- 2013 The frustrations of VSGA and VDGA
- AEC Industry Pressure on VMware to Share
- The long wait & wondering
- 2014 - The Exciting News!!





# GTC 2013



Clint  
Pearson

Jason  
Bailey

Jeremy  
Korell

# How We Fight For VDI with GPU

## Learn

- Vendor Conferences – like this one!
- Case Studies, Video's, Reference Calls & Visits

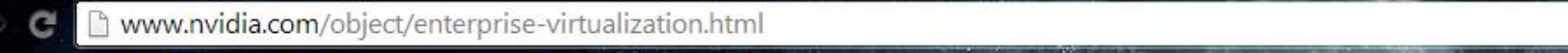
## Proof of Concept Systems

## Now Build the Presentation

- Business Reasons
- Case Studies
- Financials \$\$
- Narrow it down for execs

# HDR Technology Vendor Relationships

- Context of GPU Enabled VDI for AEC Firms



- Auto

## SOFTWARE VIRTUALIZATION SOLUTION PARTNERS



- Stra

## HARDWARE VIRTUALIZATION SOLUTION PARTNERS



- Part

## NVIDIA GRID TECHNOLOGY



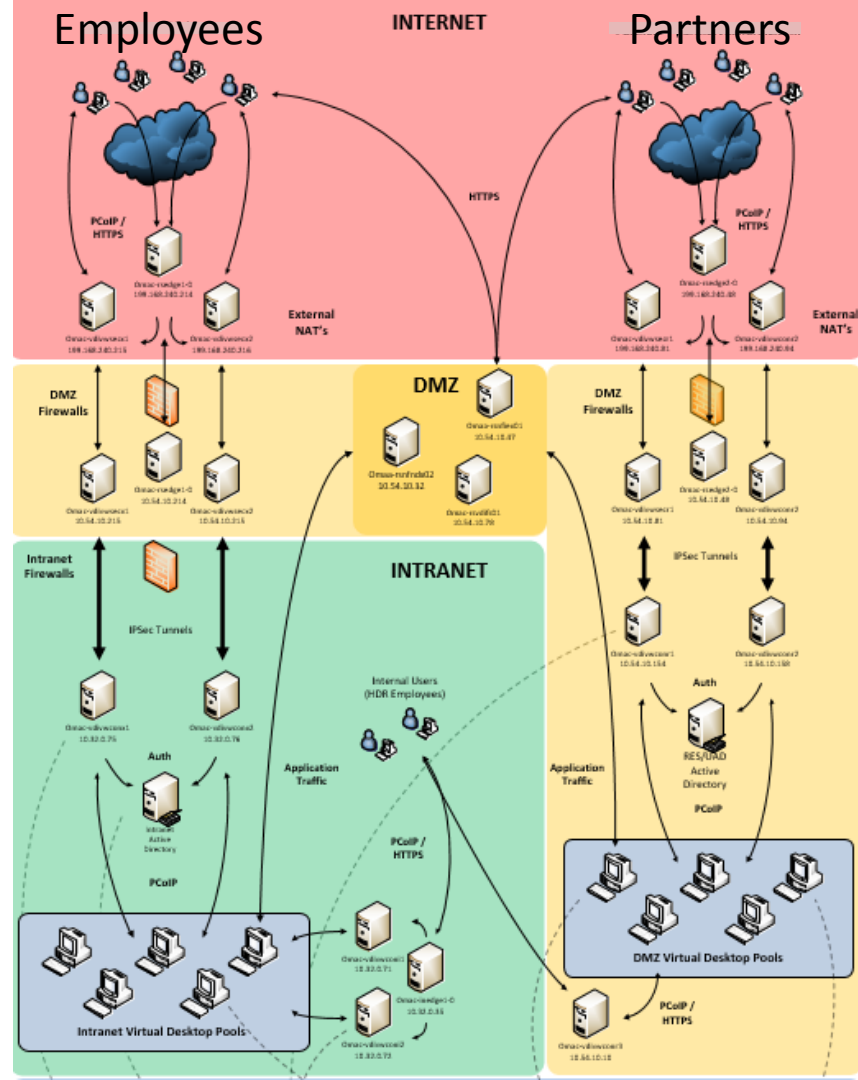
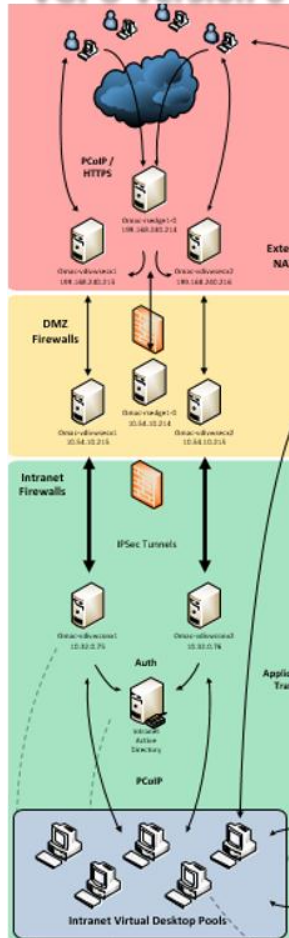
## INDUSTRY APPLICATIONS



# Current VDI

- Internal Users
- External Partners
- Unique Desktop Pools

## QA VGPU Version 6



# The Future Holds

*More GPU-enabled VDI of course!*

A composite image showing various devices displaying 3D content. A green banner at the top left contains the text "NVIDIA GRID™ GRAPHICS-ACCELERATED VIRTUALIZATION". Below the banner, a laptop shows a 3D scene with a red car and a blue car. A smartphone in the foreground shows a green car. A tablet to the right shows a 3D model of a car's engine. In the background, a monitor displays two views of a green car, and a server rack is visible.

NVIDIA GRID™  
GRAPHICS-ACCELERATED  
VIRTUALIZATION

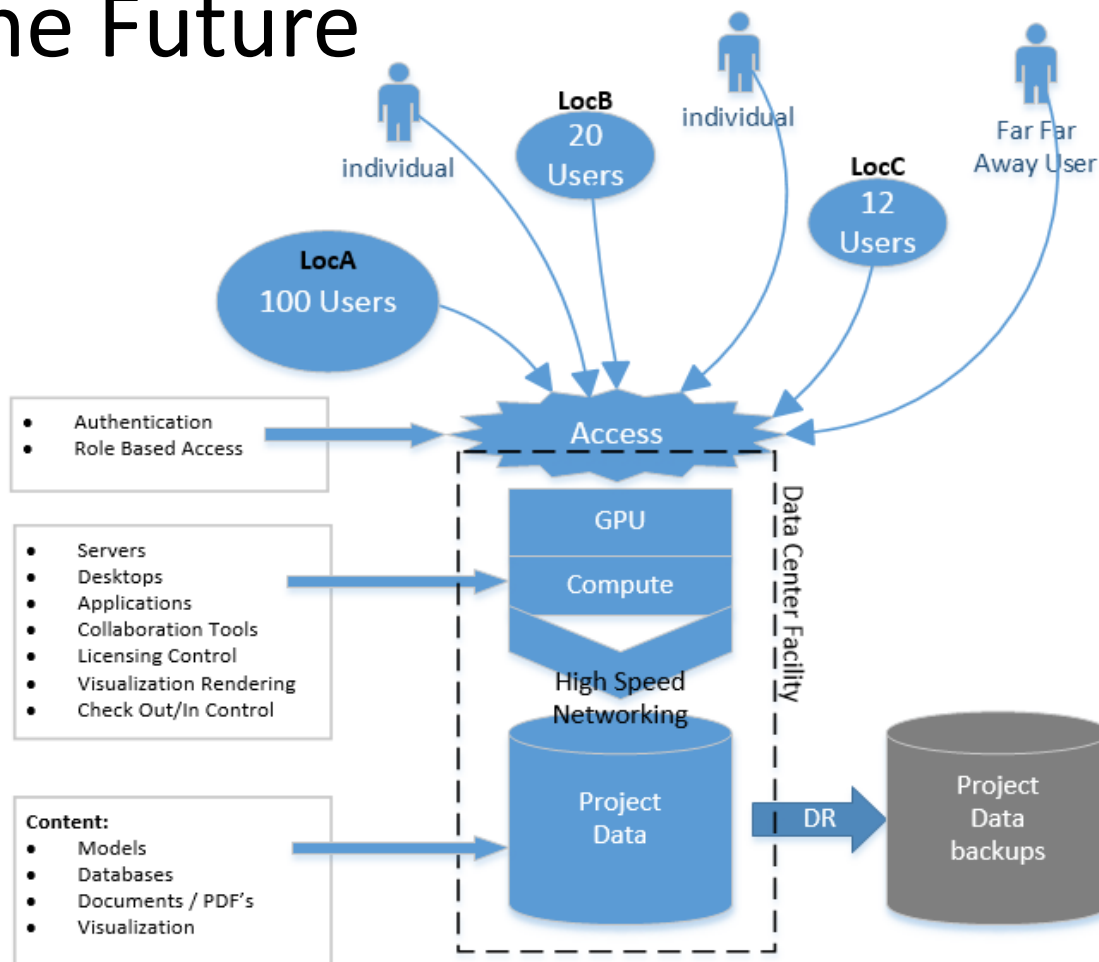
"there is no reason why anyone should have a bad VDI experience any more" - Jen-Hsun #GTC15





# The Ideal IPD Project Central

## The Future



### Advantages:

- Work from Anywhere
- Work from Any Device (lower cost)
- Version Control
- Multiple Desktop Pools with Unique Tools (flexibility)
- Data Safety & Security
- Visualizations & Rendering Next to Project Data
- Check Out/In Control

# Thank You!!

- Ways to contact:
  - [cpearson@hdrinc.com](mailto:cpearson@hdrinc.com)
  - @ClintP22
  - [LinkedIn.com/clintpearson](https://www.linkedin.com/in/clintpearson)
  - Etc.
- Your feedback is important!  
Please complete the Presenter Evaluation sent to you by email or through the GTC Mobile App.

