S6332 - TRAINING AND SIMULATION IN A SECURE CLOUD ENVIRONMENT

Matt Coppinger, Director - End User Computing, VMware
Oliver Arup, VP - Product Management, Bohemia Interactive Simulations
AGENDA

1 Why move your training and simulation workload to the cloud?
2 Virtualizing your Simulation Workloads with VMware and NVIDIA
3 VBS3 - Leveraging the Virtual Battlespace
4 Simulation Test Platform
5 Simulation Test Results
6 Resources
WHY MOVE TO THE CLOUD?

- More distributed than ever
- Large datasets are harder to share
- 3rd parties need faster yet revocable access
- Move data off endpoints
BENEFITS TO MOVING TRAINING AND SIMULATION TO THE CLOUD

- Train on any device, from any location
- No Classroom Management
- Software Encapsulation
- Higher Availability
- Dynamic Resources
- Cost Savings
DESKTOP AND GPU VIRTUALIZATION

IT Manages Centralized Virtual Desktops

Security & Compliance

Anywhere Access

Business Agility

Mobile & BYOD Access

OpEx Savings

Highly Efficient Remote Protocol

Desktop Virtualization with Server-side GPU Improves the Delivery of Graphics

Users Remotely Access from Various Devices
VIRTUALIZING YOUR SIMULATION WORKLOAD WITH VMWARE AND NVIDIA
TRAINING AND SIMULATION CLOUD ARCHITECTURE

VMware Horizon Clients

DMZ ACCESS POINTS

Virtual Appliance
Virtual Appliance

ios
Android
MacOS
Thin Client
PC

Horizon 3D Virtual Desktops

Simulation Servers
VMware Horizon Management Servers

SSD

3D DESKTOP CLUSTER

MANAGEMENT CLUSTER

VMware Horizon Clients
Bohemia Interactive Simulations
Leveraging the Virtual Battlespace
Introduction

- BISim is a well established software developer
  - 250+ staff in seven offices internationally
  - 14 year heritage in game-based simulation development

- VBS3 (Virtual Battlespace 3) is our flagship training application
  - Proven, game-based simulation for desktop training
  - Trains hundreds of thousands of soldiers every year in 39 countries
  - Tens of millions of dollars of investment from NATO militaries
  - Crafted in accordance with feedback from hundreds of SMEs

- BISim is focused on the military
  - VBS3 is the US Army’s Game For Training until 2018 ($45mil award)
  - VBS3 is the USMC’s primary DVTE training game until 2020 ($12.7mil award)
VBS: the world’s most successful training game

VBS1 for USMC/ADF

2003-2006

VBS2 for ABCA

2007-2013

VBS3

2014-

The future Virtual Battlespace
VBS3 Features

- Easily create any imaginable scenario using a wide range of land, sea and air platforms
- Import your own platforms and terrain
- Collectively train from either the first person or commander’s perspective
- Replay events using the included after-action review tool
- Leverage game technology for high fidelity graphics and physics
VBS3 IN ACTION WITH VMWARE & NVIDIA GRID
VMWARE, NVIDIA, VBS3
TEST PLATFORM SUMMARY

- **Virtual Desktop Solution:** VMware Horizon 7 and vSphere 6.0

- **vSphere Host 1:** HP DL380 (2.7Ghz)
  - **GPU 1:** NVIDIA GRID K2
  - **Virtual Desktop 1:** 4 vCPU, 8GB vRAM and NVIDIA GRID K260Q vGPU profile

- **vSphere Host 2:** HP DL380 (3.1Ghz)
  - **GPU 2:** NVIDIA GRID M60
  - **Virtual Desktop 2:** 4 vCPU, 8GB vRAM and NVIDIA GRID M60-2B vGPU profile
VBS3 TEST RESULTS VIDEO
VMWARE, NVIDIA, VBS3 TEST RESULT SUMMARY

Test 1: NVIDIA GRID K2 (K240Q) - Physical PC vs. Virtual

<table>
<thead>
<tr>
<th>VBS3 Test</th>
<th>Physical</th>
<th>Virtual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Load</td>
<td>3 minutes</td>
<td>1 minutes</td>
</tr>
<tr>
<td>Scenario Editor</td>
<td>28 FPS</td>
<td>28 FPS</td>
</tr>
<tr>
<td>Automated Scenario</td>
<td>28 FPS</td>
<td>26 FPS</td>
</tr>
<tr>
<td>Interactive Scenario</td>
<td>26 FPS</td>
<td>24 FPS</td>
</tr>
</tbody>
</table>

Test 2: NVIDIA GRID M60 - vGPU Profile Comparison

<table>
<thead>
<tr>
<th>VBS3 Test</th>
<th>M60-2B</th>
<th>M60-4B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tutorial Missions</td>
<td>45 FPS (FRL)</td>
<td>57 FPS</td>
</tr>
<tr>
<td>Light Automated Scenario</td>
<td>45 FPS (FRL)</td>
<td>57 FPS</td>
</tr>
<tr>
<td>Automated Scenario</td>
<td>35 FPS</td>
<td>37 FPS</td>
</tr>
<tr>
<td>Interactive Scenario</td>
<td>28 FPS</td>
<td>30 FPS</td>
</tr>
</tbody>
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WRAP-UP / RESOURCES
RESOURCES

- VMware Horizon 6 3D Reference Architecture

- NVIDIA GRID Certified Servers

- NVIDIA GRID & VMware Horizon Deployment Guide

- VMware Horizon 6 Reference Architecture

- VMware Horizon with View Graphics Acceleration Deployment Guide
THANKS - Q&A

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