

**MICHIGAN STATE**  
**UNIVERSITY**

# Beta Presentation

## Simplifying High Performance Computing

**The Capstone Experience**  
Team Michigan State University HPCC

Caleb Winner  
Christian Luedtke  
Matt Williams  
Zach Roush  
Zhihan Wang



*From Students...*  
*...to Professionals*

Department of Computer Science and Engineering  
Michigan State University  
Spring 2019

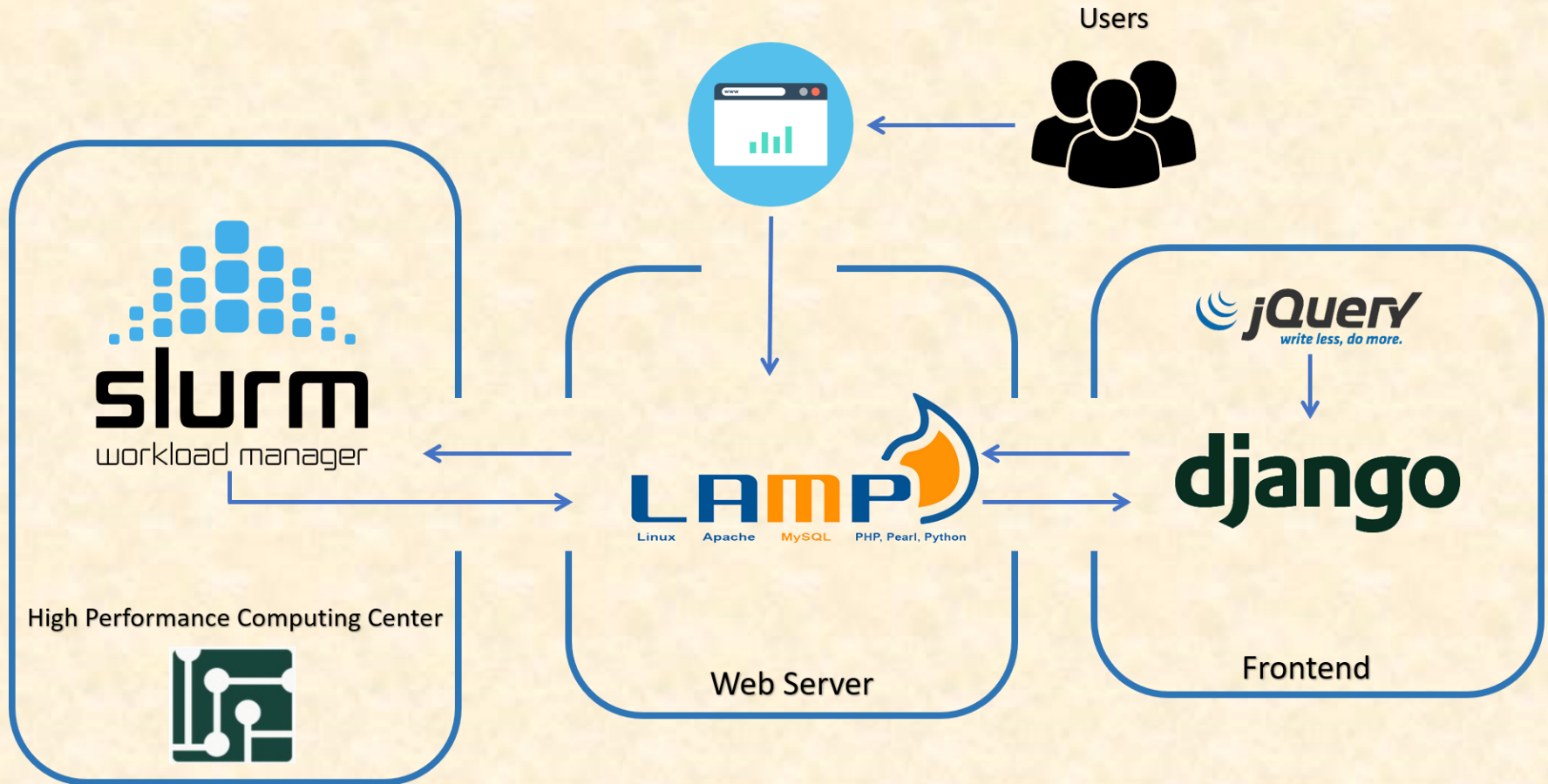
# Project Overview

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- Simplifies the Process of Using the HPCC
- Works Through a Simple Web App
- Provides Script Generation
- Job Monitoring
- Job Statistics
- Job Submission
- Etc...



# System Architecture



# Job Submission

The screenshot shows a web browser window with the URL `https://35.9.22.112/ScriptGen/bash/`. The page header includes the MSU HPCC logo and the text "Created for Capstone Spring 2019". The main content area is a form for generating a bash script. On the left, there are input fields for "Wall time:" (00:00:01), "Job name:" (job name), "Nodes:" (1), "CPUs:" (1), "MemoryPerCPU:" (20M), "Tasks:" (1), and "ExecutableName:" (example.py). On the right, there are buttons for "Update Bash Script" and "Download Bash File". Below these is a text area containing a generated bash script. At the bottom right, there is a "Choose File" button (labeled "No file chosen") and a "Submit Job" button. At the bottom left, there is a "Generate Bash Script" button. The footer of the page contains the text "Capstone Our Team HPCC Home Old Job Sub". The Windows taskbar is visible at the bottom of the browser window.

Script Generator

Not secure | <https://35.9.22.112/ScriptGen/bash/>

MSU HPCC  
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Wall time:  
00:00:01

Job name:  
job name

Nodes:  
1

CPUs:  
1

MemoryPerCPU:  
20M

Tasks:  
1

ExecutableName:  
example.py

Update Bash Script

Download Bash File

```
#!/bin/bash

##SBATCH Lines for Resource Request ##

#SBATCH --time=00:00:01
#SBATCH --nodes=1
#SBATCH --tasks=1
#SBATCH --mem-per-cpu=20M
#SBATCH -J job name
##Command Lines to Run ##

srun -n 1 python ./example.py
```

Choose File No file chosen

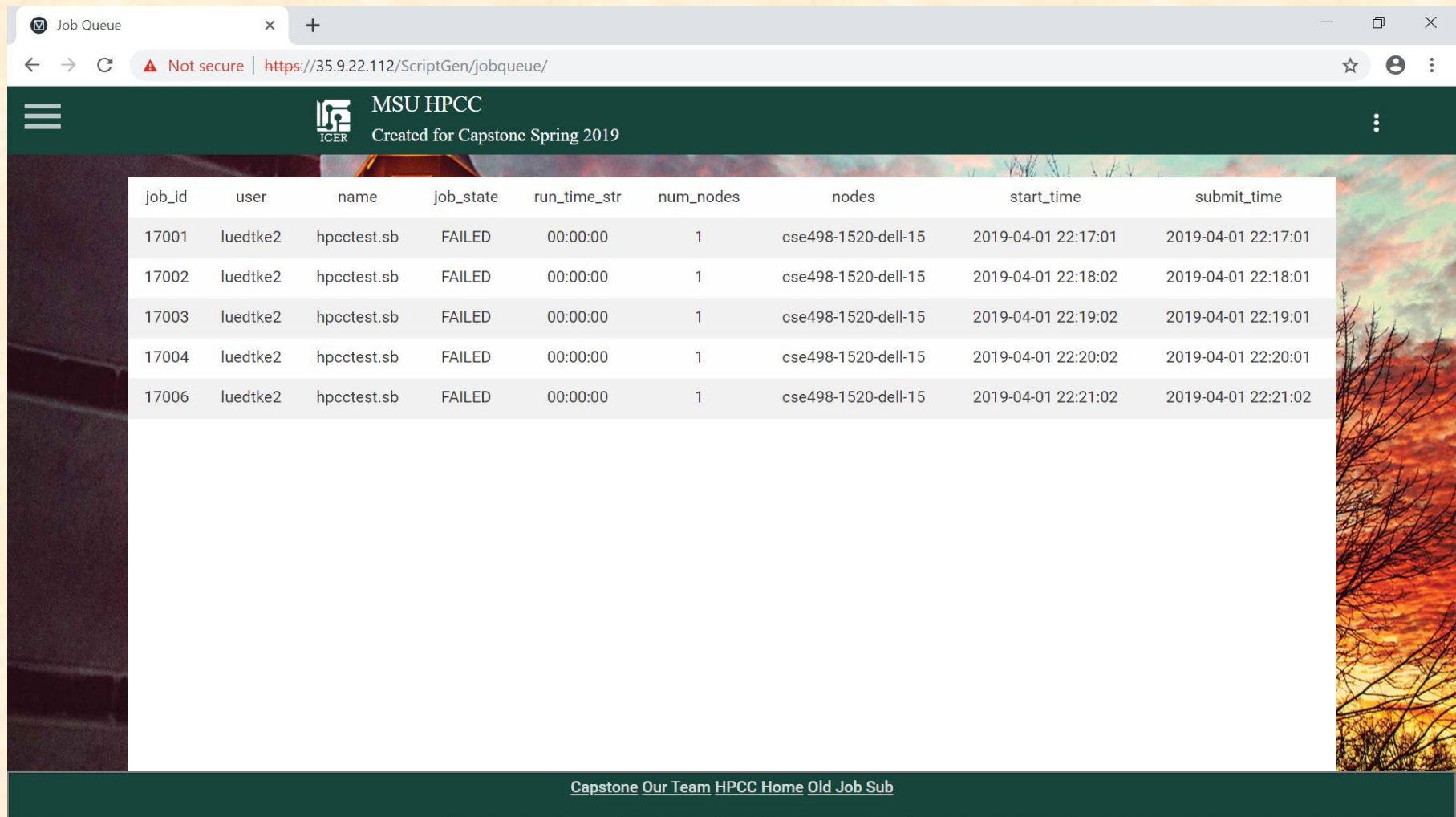
Submit Job

Generate Bash Script

Capstone Our Team HPCC Home Old Job Sub



# Job Queue



Job Queue

Not secure | <https://35.9.22.112/ScriptGen/jobqueue/>

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job_id	user	name	job_state	run_time_str	num_nodes	nodes	start_time	submit_time
17001	luedtke2	hpcctest.sb	FAILED	00:00:00	1	cse498-1520-dell-15	2019-04-01 22:17:01	2019-04-01 22:17:01
17002	luedtke2	hpcctest.sb	FAILED	00:00:00	1	cse498-1520-dell-15	2019-04-01 22:18:02	2019-04-01 22:18:01
17003	luedtke2	hpcctest.sb	FAILED	00:00:00	1	cse498-1520-dell-15	2019-04-01 22:19:02	2019-04-01 22:19:01
17004	luedtke2	hpcctest.sb	FAILED	00:00:00	1	cse498-1520-dell-15	2019-04-01 22:20:02	2019-04-01 22:20:01
17006	luedtke2	hpcctest.sb	FAILED	00:00:00	1	cse498-1520-dell-15	2019-04-01 22:21:02	2019-04-01 22:21:02

[Capstone](#) [Our Team](#) [HPCC Home](#) [Old Job Sub](#)



# Stats Table

Statistics

Not secure | <https://35.9.22.112/stats/>

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Job Submissions 2018 Failed Jobs Breakdown Top Job Submitters Statistics Table

Average Wait Time	14.371428571428572
Total Jobs Submitted	1015
Jobs Submitted this Week	509
Percent of Jobs Completed	99.70443349753695
Percent of Errored Jobs	0.2955665024630542
Percent of Jobs Running	0.0
Percent of Jobs Pending	0.0
Total Complete Jobs	1012
Total Errored Jobs	3
Total Running Jobs	0
Total Jobs Pending	0
Total Jobs Submitted in Group	6077
Percent of Group Jobs Completed	86.73687674839559
Percent of Errored Group Jobs	13.26312325160441

Capstone Our Team HPCC Home Old Job Sub

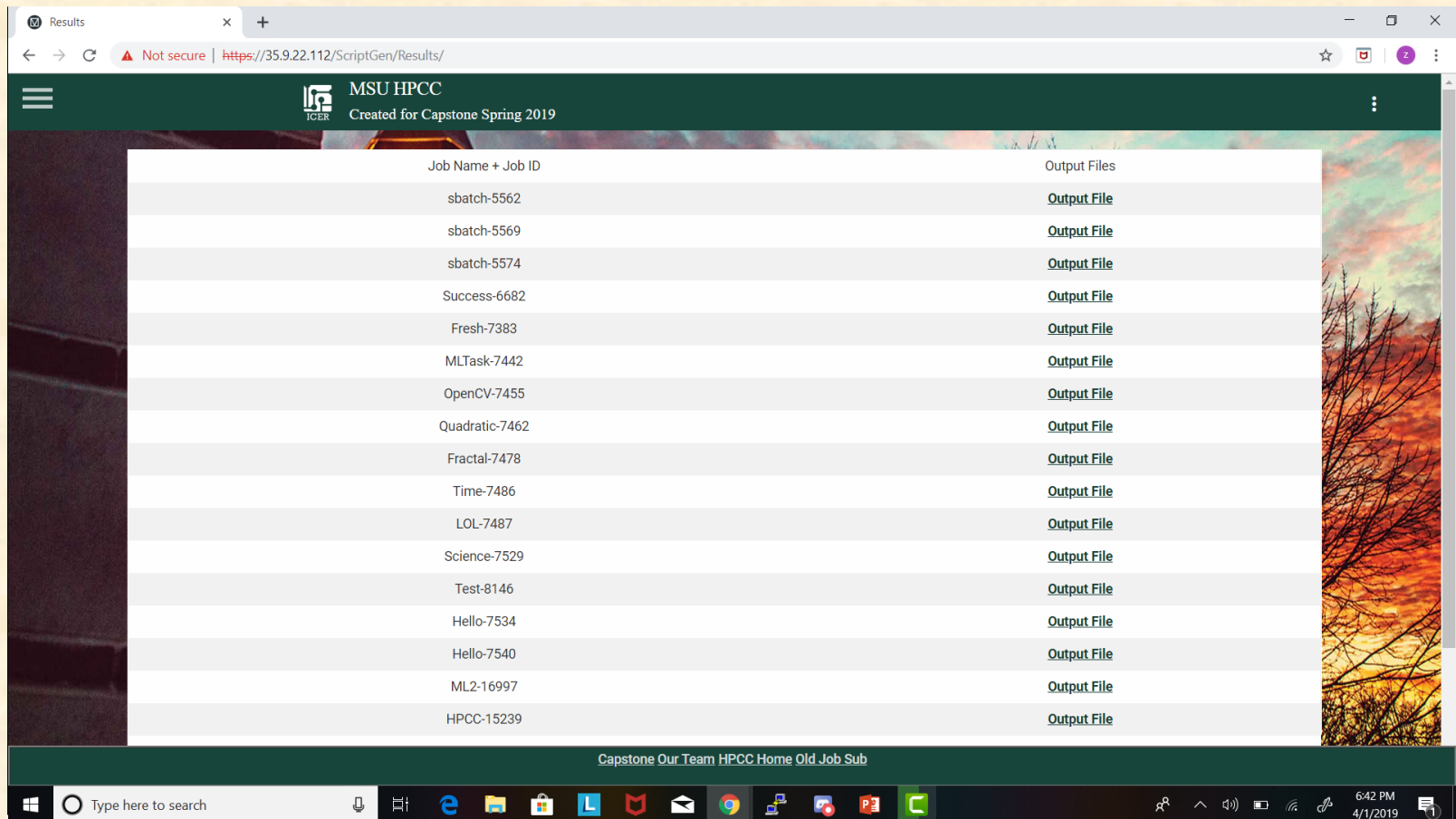
Type here to search

6:28 PM  
4/1/2019





# Results/ Downloads



Job Name + Job ID	Output Files
sbatch-5562	<a href="#">Output File</a>
sbatch-5569	<a href="#">Output File</a>
sbatch-5574	<a href="#">Output File</a>
Success-6682	<a href="#">Output File</a>
Fresh-7383	<a href="#">Output File</a>
MLTask-7442	<a href="#">Output File</a>
OpenCV-7455	<a href="#">Output File</a>
Quadratic-7462	<a href="#">Output File</a>
Fractal-7478	<a href="#">Output File</a>
Time-7486	<a href="#">Output File</a>
LOL-7487	<a href="#">Output File</a>
Science-7529	<a href="#">Output File</a>
Test-8146	<a href="#">Output File</a>
Hello-7534	<a href="#">Output File</a>
Hello-7540	<a href="#">Output File</a>
ML2-16997	<a href="#">Output File</a>
HPCC-15239	<a href="#">Output File</a>



# What's left to do?

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- Site UI Cleanup
- Bugfixes
- Optimizations
- Playground





# Questions?

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