MICHIGAN STATE UNIVERSITY

Project Plan
Project Plato – GM DevBot

The Capstone Experience

Team GM

Colin Coppersmith
Simeon Goolsby
Alex Lepird
Matthew Eaton
Tao Tao

Department of Computer Science and Engineering
Michigan State University

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From Students…
…to Professionals

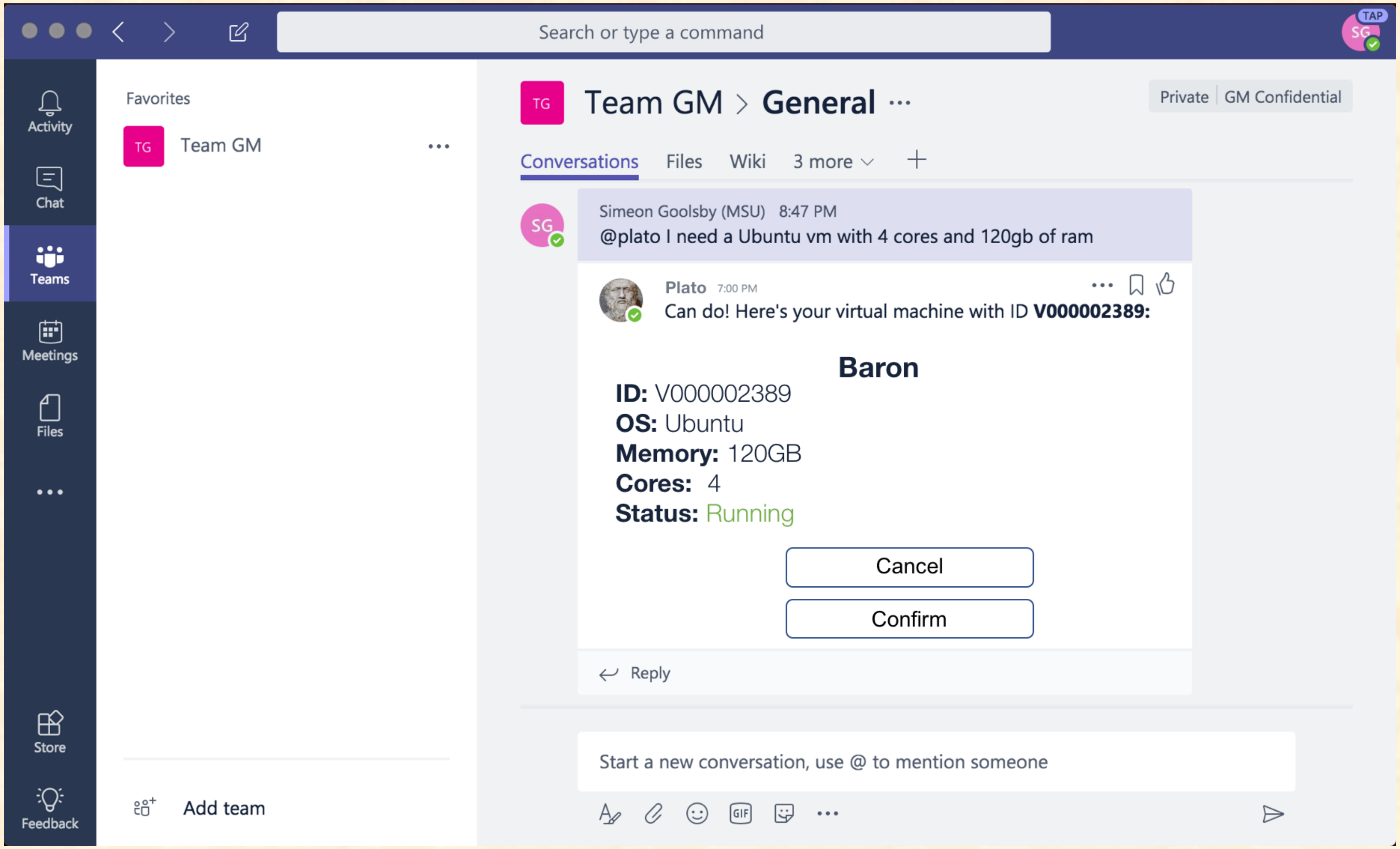
Functional Specifications

- Consolidate common developer tasks into Microsoft Teams
- Create and manipulate virtual machines
- Discover and run test cases
- Consists of three Components:
  1. AI Chatbot
  2. Microsoft Teams Tab
  3. Microsoft Teams Connector
- Provide a unified and familiar environment for Developers

Design Specifications

- Bot and Connector UI embedded in Teams chat channel
- Tab will utilize GM style guidelines from past VM management system for coloring and formatting (CSS)
- Tab consists of two sections, VM and Testing
- Tab is a high-level view of system
- Tab displays metrics and visualizations about assets
- Tab will provide UI to stop/start VM's and run tests
- Bot << extends >> Tab
- Bot integrated as a member of a team
- Bot invoked by team member saying "@plato"

Screen Mockup: VM Creation (Bot)



Simeon Goolsby (MSU) 8:47 PM
@plato I need a Ubuntu vm with 4 cores and 120gb of ram

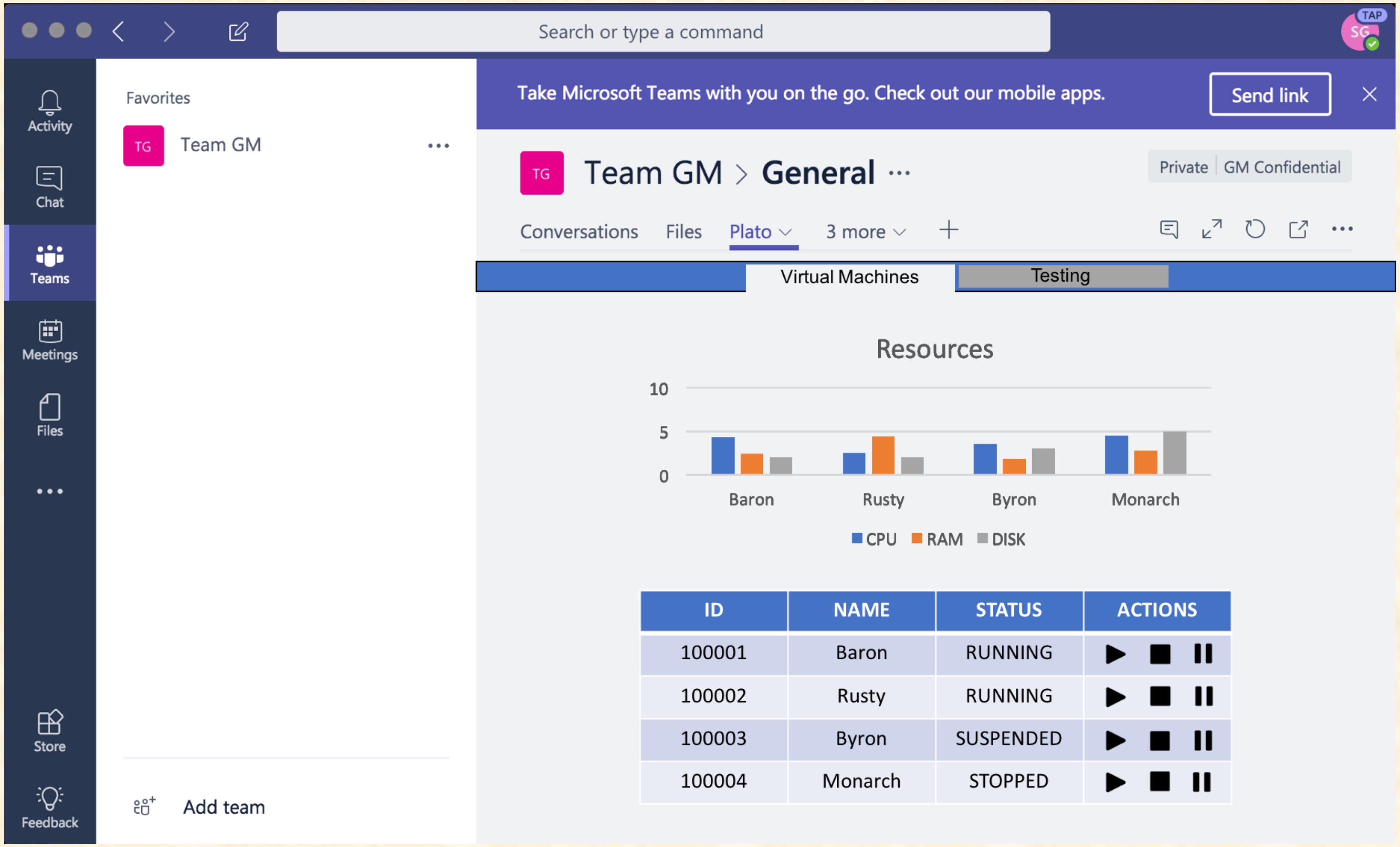
Plato 7:00 PM
Can do! Here's your virtual machine with ID **V000002389:**

Baron
ID: V000002389
OS: Ubuntu
Memory: 120GB
Cores: 4
Status: Running

Cancel

Confirm

Screen Mockup: Web Dashboard App (Tab)



Take Microsoft Teams with you on the go. Check out our mobile apps.

Team GM > General

Virtual Machines | Testing

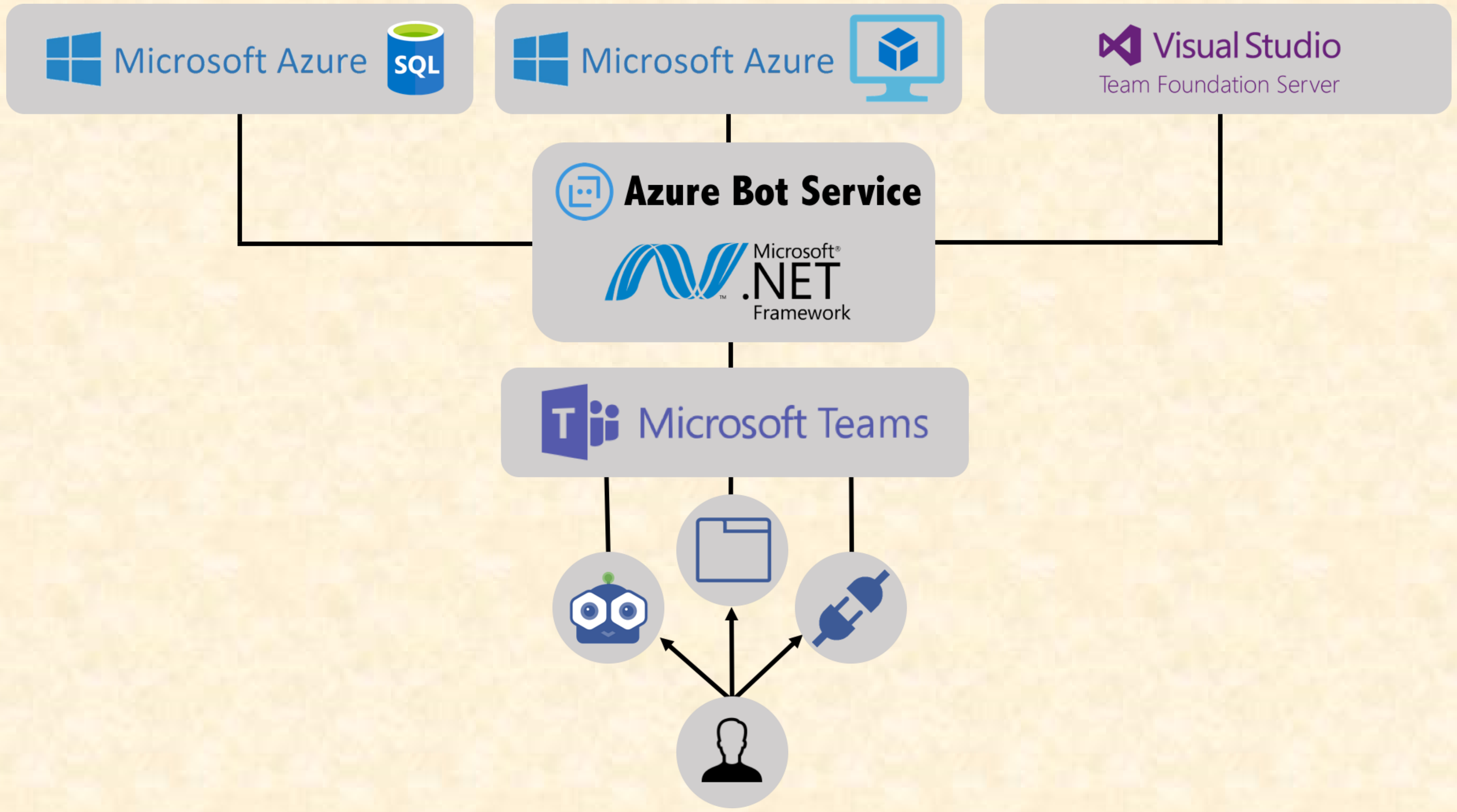
Resources

ID	NAME	STATUS	ACTIONS
100001	Baron	RUNNING	▶ ■ ❚❚
100002	Rusty	RUNNING	▶ ■ ❚❚
100003	Byron	SUSPENDED	▶ ■ ❚❚
100004	Monarch	STOPPED	▶ ■ ❚❚

Technical Specifications

- Uses Azure REST API for VM management
- Uses Test Management API for TFS
- Using Microsoft Bot Framework and LUIS for bot
- Angular.js, HTML 5, CSS, JavaScript for tab frontend
- Common C# backend controller that will communicate with Azure, SQL Server, and TFS
- Side-loading bot and web application into Teams
- Dashboard/Tab is standalone

System Architecture



System Components

- Hardware Platforms
  - Ubuntu Server on Server Rack
  - MSSQL Server Standard 2017 Database
- Software Platforms / Technologies
  - Visual Studio 2017 IDE
  - SQL Operations Studio/SQL Server Management Studio
  - Microsoft Team Foundation Server for testing, source control, and version control
  - Microsoft Bot Emulator for bot testing
  - Microsoft Teams for collaboration, testing, and deployment

Risks

- Resource Limitations
  - Description: Azure gives us $200, hosting and testing may get expensive.
  - Mitigation: Each team member can make account, can utilize other services if necessary, and could set up our own server in worst case.
- Responsive Design
  - Description: Teams has mobile app, need to adapt tab to different screen sizes and experiences.
  - Mitigation: Use responsive CSS, allow for scaling.
- User/Team Individual Experience
  - Description: Tailor experience to team and user.
  - Mitigation: Using Email as primary identifier, records in database.
- Asset Checking with Input Validation
  - Description: User could abuse bot, limited resources.
  - Mitigation: Validate against records, put upper limit on creation.

Questions?

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