F.M. SMUCKER COMPANY

Interactive Product Wall User Manual

January 2018

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Introduction

This document describes the computer architecture of the J.M. Smucker (JMS) Innovation Center (SIC). Interactive displays in thirteen rooms or destinations tell the story of the Smucker brands.

A content management system (CMS) supports the creation and modification of digital content and stores that content for most of the rooms. Display content is retrieved when the computers in each room reboot each day at 2:00 a.m. The reboot activates Manifest Ingest, a Python applet, which then queries the CMS for newly published content.

Content includes PowerPoint slides, images, videos, and farm-to-table (FTT) films. Some content, including 3D objects and FTT films, is manually loaded onto the room computers and bypasses the CMS. And some rooms have touch screens and applications that are run by the Unity game engine.

A diagram of the high-level architecture for interactive displays at the SIC is on the next page.

Content

Most content is authored in PowerPoint and uploaded into the CMS as .pptx files.

A Windows desktop exporter—a PowerPoint tool (PPT)—written in C# for the Rotunda application (

Power Point Tool – (Exporter Tool) on page 31) breaks down PowerPoint slides into .mp4 video files, .txt notes, and .png icons as well as retaining the original .pptx format. All of which are contained in a .jms zip file that is then loaded into the CMS.

Content is then controlled by the Presenter iPad app (see Presenter App on page 27) in the individual rooms or by touch screen.

As stated above, content not stored in the CMS is loaded on the individual room computers and activated by touch screens. PowerPoint slides used as a background pictures, i.e., the window and outside world in Coffee College, do reside in the CMS, but remain static unless edited.

The front end or user side of the CMS uses HTML with Django Template Language. The back end is written in Python using Django and Django REST framework.[1]

[1] REST stands for Representational State Transfer. The Django **REST framework** is a toolkit for building Web APIs.

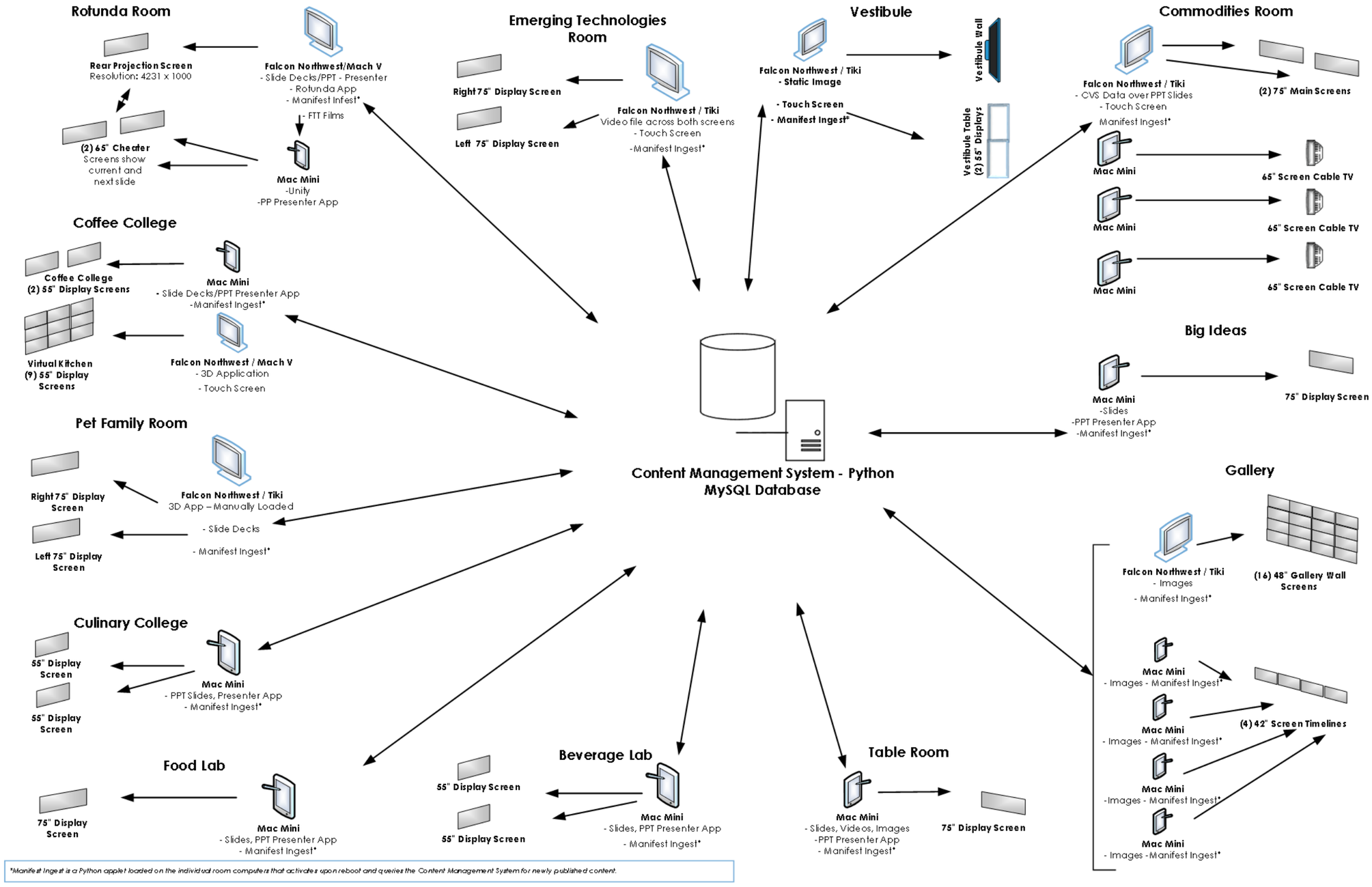

Figure 1 - FMS High-Level Architecture

Rotunda

Introduction

The Rotunda room, as illustrated in the diagram below, is in the Freezer Building and has the most complex architecture.

The room is equipped with a Falcon Northwest/Mach V computer with a Windows operating system. The Rotunda app loaded on the Falcon PC is a Unity application and uses TCP sockets for communication with the Presenter App

Content includes PowerPoint slides parsed by a Windows desktop

Power Point Tool – (Exporter Tool) and FFT films.

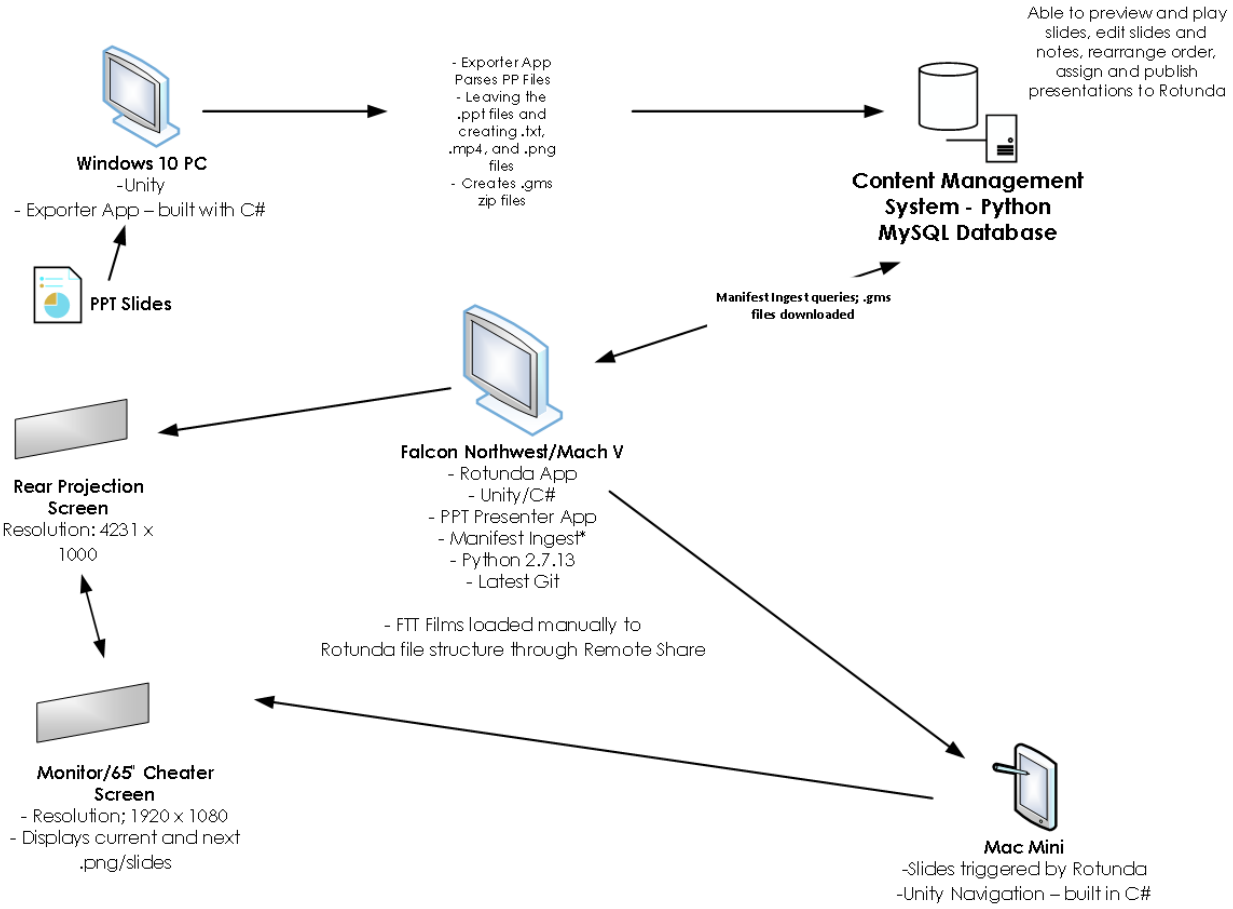

Figure 2 - Rotunda Room

To install the Rotunda app or FTT films, [redacted], then to a Windows server with a Microsoft remote desktop protocol (RDP) client. TeamViewer software is then used to connect from the Windows server to the Rotunda PC for file transfer. When the room computer reboots every day at 2:00 a.m., Manifest Ingest, an applet written in Python and residing on the room PC, queries the CMS for newly published content.

The Rotunda app feeds the large rear-projection system and is controlled by the Presenter App
. FFT films are loaded manually onto the Falcon Northwest/Mach V room computer. The Rotunda Viewer app is a Unity app that that connects to the main Rotunda app to grab the current and next slides for the 65-inch "cheater" screen through a Mac Mini.

Rotunda Administration (Let's differentiate between Administration and Development)

The Rotunda Room Administration is illustrated in the diagram below.

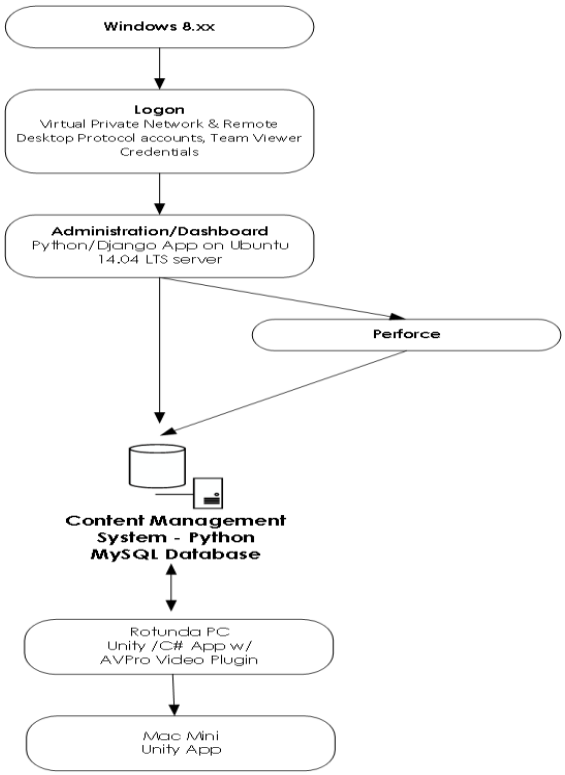

Figure 3 - Rotunda Room Administration

Logon requires a VPN and remote desktop accounts, as well as team viewer credentials for access.

Once logon is complete, all apps are visible on the dashboard. Databases for the rooms are separate, but there is one front end, written in [redacted].

Source code is stored in [redacted] a local repository.

Multiple presentations are published and stored in the CMS database (MySQL).

Slides are previewed, played, and assigned to the Rotunda app from the CMS.

Rotunda Content Pipeline

The diagram below illustrates the content pipeline. PowerPoint slides are loaded onto a Windows 10 PC that has an app known as

Power Point Tool – (Exporter Tool), or PPT. The PPT parses the PowerPoint slides, creating—in addition to the .pptx files—.txt, .mp4, and .png files (notes, videos, and icons), and packages the files in a compressed .jms file. The .jms file is then uploaded to the content management system.

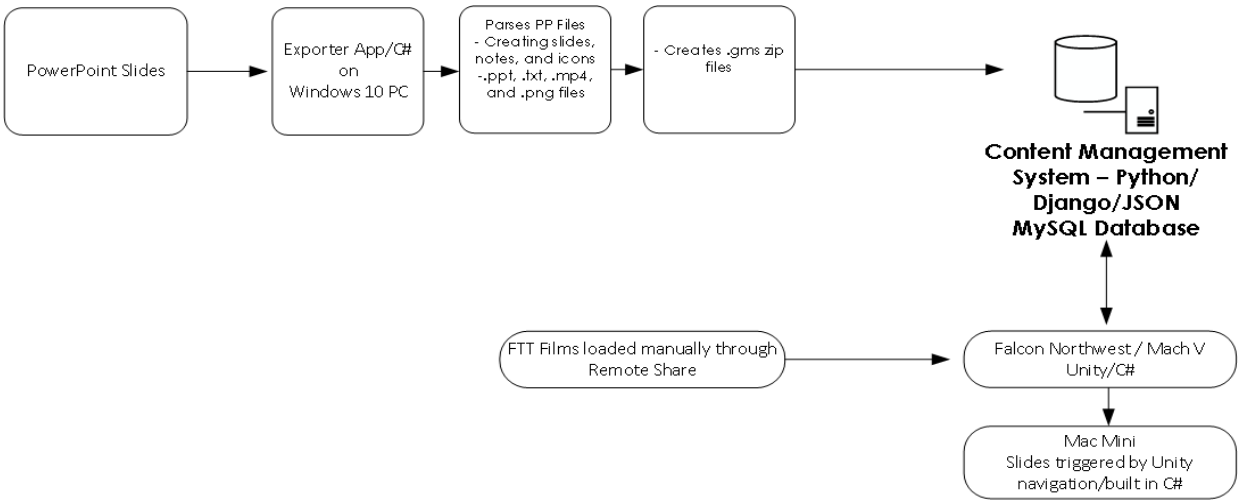

Figure 4 - Rotunda Room Content Pipeline

When the room PC reboots, [redacted], a Python applet, queries the CMS for newly published content. Then, when the Rotunda app is loaded, whatever presentations and FTT films have been published in CMS appear on the main menu.

FFT films are manually loaded onto the room computer through remote share.

Virtual Kitchen and Coffee College

Introduction

The Coffee College Room, as illustrated in the diagram below, houses the Virtual Kitchen, a complex content delivery system. A Falcon PC Mach V is the room computer and has a 3D application written in Unity/C#. The Unity asset bundles for the Virtual Kitchen are loaded manually, and the 3D objects appear on nine 55-inch touch-activated display screens.

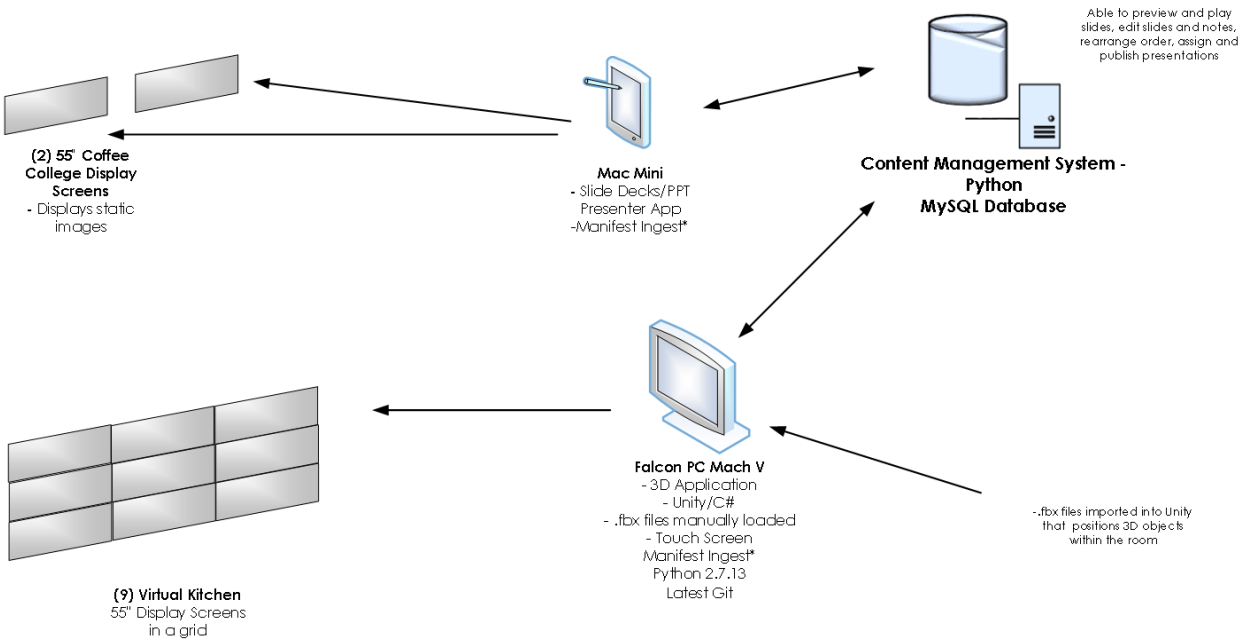

Figure 5 - Coffee College and Virtual Kitchen

Coffee College also has a 75-inch display screen that displays slides from the CMS.

Pet Family Room

Introduction

A Falcon Northwest/Tiki is the room PC. It renders a 3D environment, with Unity asset bundles displayed on a 75-inch touch screen (right screen). The room computer also has [redacted], which queries the CMS for newly published content. The 75-inch left screen displays slides.

The architecture of the room is illustrated in the diagram below.

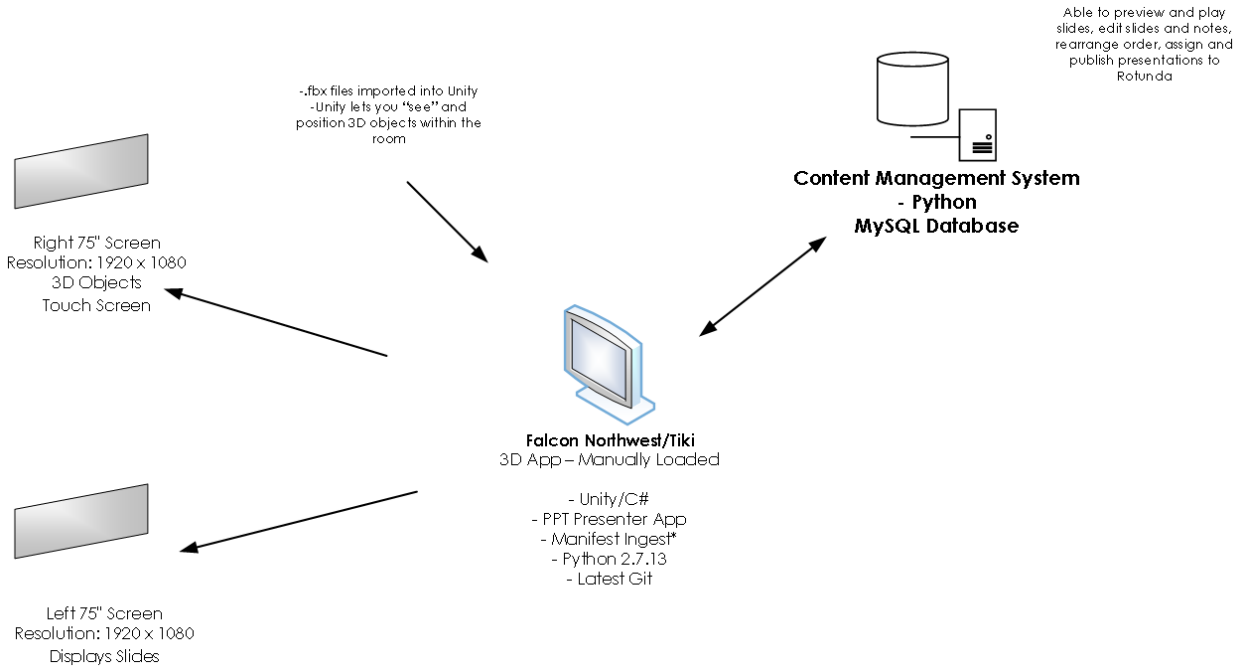

Figure 6 - Pet Family Room

Emerging Technologies

Introduction

The room computer is a Falcon Northwest / Tiki. Video is streamed across two screens. Air, Actionscript, Adobe Animate

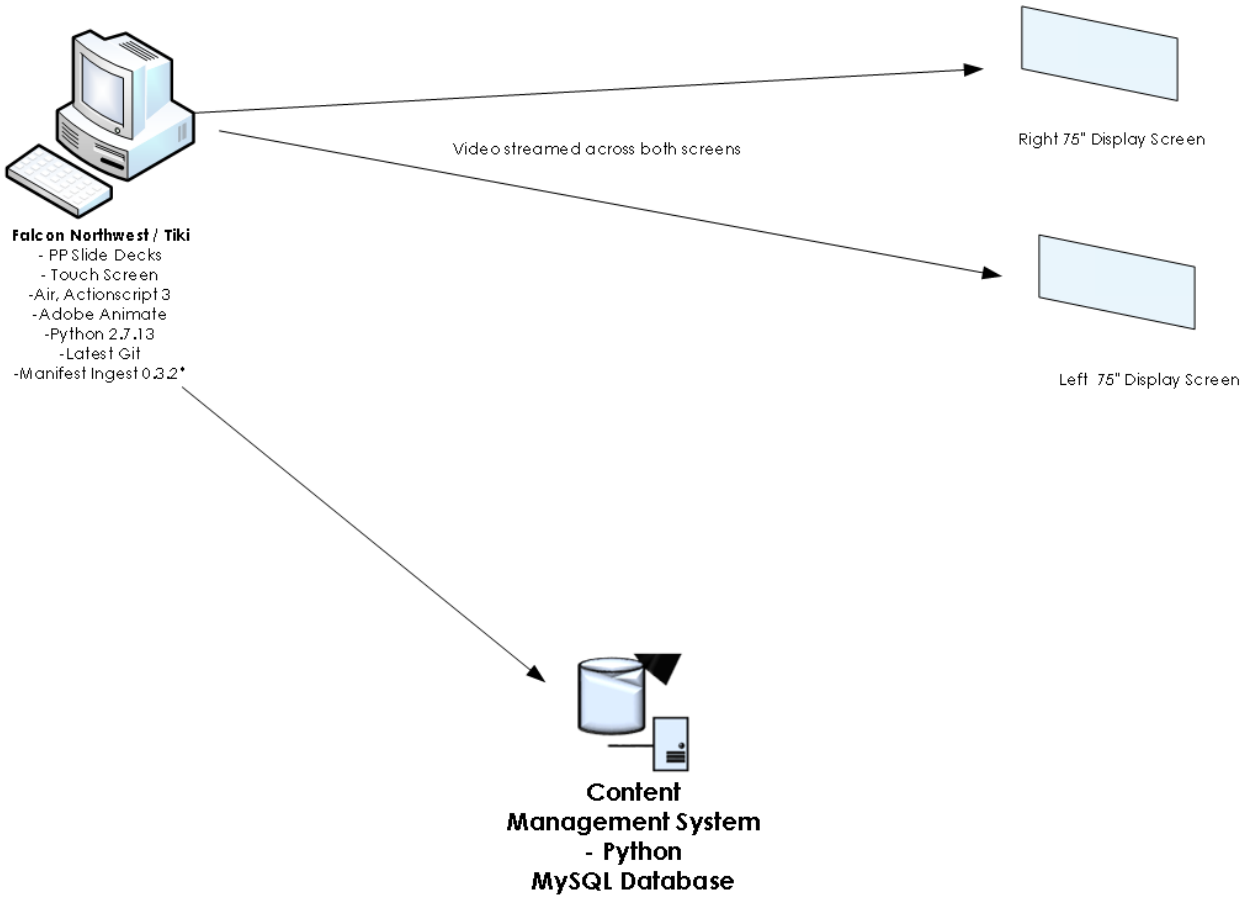

Figure 7 - Emerging Technologies Room

Commodities

Introduction

The Commodities Room PC is a Falcon Northwest/Tiki.

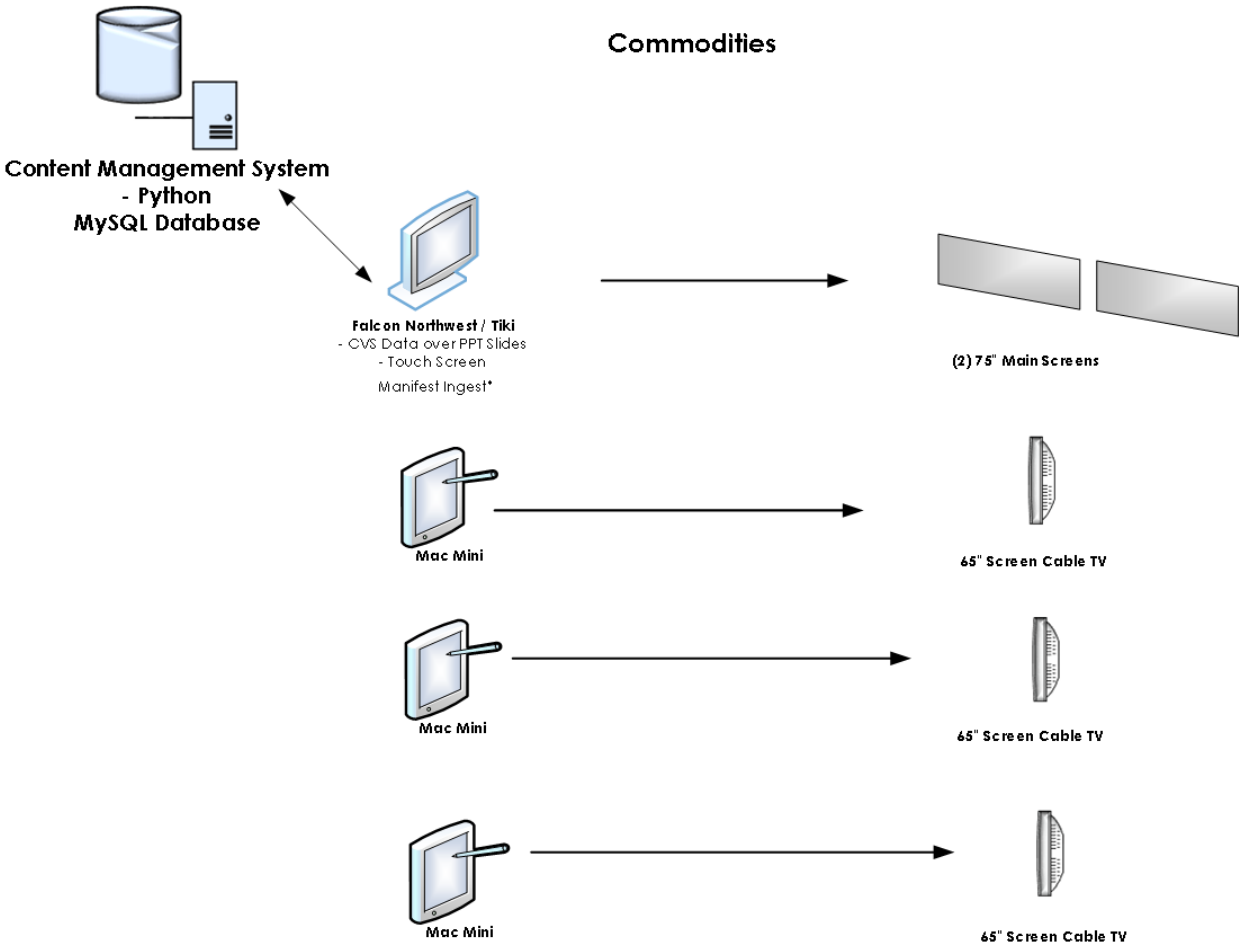

Figure 8 - Commodities Room

Coffee House

Introduction

The Coffee House in the main lobby is where guests meet when they first arrive and have breakfast and coffee before proceeding to the Table Room for kickoff. The Coffee Room displays present a static image of the day's agenda. The content is comprised of image files (1920 x 1080 .jpg files) that are fed to the Coffee House computer (Mac Mini) via the CMS.

Table 1- Coffee House Display Information

Location	IP Address	Software Stack	Content	Display Info
Lobby	[redacted]	Mac OS	Image files – 1920 x 1080 .JPG	2 – 55" screens
		Adobe Air		
		Coffee House App		
		[redacted]		

Installation steps

After the onsite team has installed a fresh operating system (OS), the following steps describe the way to load and configure the application:

Coffee College

Introduction

Guests learn about coffee production in the Coffee College. There is one (1) 75-inch display (1920 x 1080) that presents full-screen PowerPoint slides. The content is fed to the Coffee College computer (Mac Mini) via the CMS. The Presenter App on the Presenter iPad controls the content. The Virtual Kitchen, described previously, is in Coffee College as well.

Table 2 - Coffee College Display Information

Location	IP Address	Software Stack	Content	Display Info
Coffee College Room	[redacted]	Mac OS	Power Point files - 1920 x 1080 .PPTX	1 - 75”
		Power Point Control		
		[redacted]		

Installation Steps

After the onsite team has installed a fresh OS, the following steps describe the way to load and configure the application:

Beverage Lab

Introduction

The Beverage Lab presents information about JMS beverage products. There are two (2) 55-inch displays (1920 x 1080) that present full-screen PowerPoint slides. The content is fed to the Beverage Lab computer (Mac Mini) via the CMS. The Presenter App

Table 3 - Beverage Lab Display Information

Location	IP Address	Software Stack	Content	Display Info
Beverage Lab	[redacted]	Mac OS	Power Point files - 1920 x 1080 .PPTX	2 - 55"
		Power Point Control		
		[redacted]		

Installation steps

After the onsite team has installed a fresh OS, the following steps describe the way to load and configure the application:

Food Lab

Introduction

The Food Lab presents guests with information about food products such as baking products and spreads. A 75-inch display (1920 x 1080) presents full-screen PowerPoint slides. Content is fed to the Food Lab computer (Mac Mini) via the CMS. The Presenter App on the Presenter iPad provides control

Table 4- Food Lab Display Information

Location	IP Address	Software Stack	Content	Display Info
Food Lab	[redacted]	Mac OS	Power Point files - 1920 x 1080 .PPTX	1 - 75"
		Power Point Control		
		[redacted]		

Installation steps

After the onsite team has installed a fresh OS, the following steps describe the way to load and configure the application:

Culinary College

Introduction

Guests learn about the Culinary College. There are two (2) 55-inch displays (1920 x 1080) that display full-screen PowerPoint slides. The content is fed to the Food Lab computer (Mac Mini) via the CMS. The Presenter App
on the Presenter iPad controls content.

Table 5 - Culinary College Display Information

Location	IP Address	Software Stack	Content	Display Info
Culinary College	[redacted]	Mac OS	Power Point files - 1920 x 1080 .PPTX	2 - 55”
		Power Point Control		
		[redacted]		

Installation steps

After the onsite team has installed a fresh OS, the following steps describe the way to load and configure the application:

Big Ideas

Introduction

The Big Ideas room presents information to guests learn. There are two (2) 55-inch displays (1920 x 1080) that present full-screen PowerPoint slides. The content is fed to the Food Lab computer (Mac Mini) via CMS. The Presenter App which is on the Presenter iPad controls content.

Table 6 - Big Ideas Display Information

Location	IP Address	Software Stack	Content	Display Info
Big Ideas Room	[redacted]	Mac OS	Power Point files - 1920 x 1080 .PPTX	1 - 75”
		Power Point Control		
		[redacted]		

Installation steps

After the onsite team has installed a fresh OS, the following steps describe the way to load and configure the application:

Table Room

Introduction

The Table Room is where visits start and finish. There is one (1) 75-inch display (1920 x 1080) that presents full-screen PowerPoint slides. The content is fed to the Food Lab computer (Mac Mini) via CMS. The Presenter App on the Presenter iPad controls content. There are also multiple digital picture frames which display customer specific images for a visit. These images are managed by the CMS.

Table 7 - Table Room Display Information

Location	IP Address	Software Stack	Content	Display Info
Table Room	[redacted]	Mac OS	Power Point files - 1920 x 1080 .PPTX	1 - 75”
		Power Point Control	Images (.JPG files)	Digital Picture Frames
		[redacted]		
		Table Room App		
		Adobe Air		

Installation steps

After the onsite team has installed a fresh OS, the following steps describe the way to load and configure the application:

Vestibule Wall

Introduction

Guests meet in the Vestibule area outside the main facility before a visit. The logo of the visiting company is on the display and is not interactive. Content is comprised of image files (600 x 400 .PNG) that are fed to the Vestibule Wall computer via the CMS).

Table 8 - Vestibule Wall Display Information

Location	IP Address	Software Stack	Content	Display Info
Vestibule	[redacted]	Windows 10	Image files – 600 x 400 .PNG	1 LED Panel
		Unity		
		Vestibule Wall App		
		xxx		

Installation steps

After the onsite team has installed a fresh OS and followed the Windows configuration steps listed in , the following steps describe the way to load and configure the application:

Vestibule Table

Introduction

As stated above, the Vestibule area outside the main facility is where guests meet before a visit. The Vestibule Table has built in displays that show the visiting company's information. The contents are fed to the table's computer via the CMS).

Table 9 - Vestibule Table Display Information

Location	IP Address	Software Stack	Content	Display Info
Vestibule	[redacted]	Windows 10	???	2 – 55" Touch Displays
		Unity		
		Vestibule Table App		
		xxx		

Installation steps

After the onsite team has installed a fresh OS and followed the Windows configuration steps listed in, the following steps describe the way to load and configure the application:

Gallery Wall

Introduction

The Gallery Wall in the main lobby entrance provides guests with a multi-image presentation of JMS products. The 16 displays are arranged as a video wall and are not interactive. The contents are image files of various dimensions that can be arranged in the CMS.

Table 10 - Gallery Wall Display Information

Location	IP Address	Software Stack	Content	Display Info
Lobby	[redacted]	Windows 10	Image files - .JPG	16 – 48" Displays
		Unity		
		xxx		

Installation steps

After the onsite team has installed a fresh OS and followed the Windows configuration steps listed in. the following steps should be used to load and configure the application:

Gallery Table (Timelines)

Introduction

The Gallery Table (aka Timelines) is the main lobby entrance is where guests see an interactive presentation of JMS brands and products. The four (4) displays are arranged as a table and are interactive. The content is a combination of image files (400 x 400) and text that is managed in the CMS.

Table 11 - Gallery Table (Timelines) Display Information

Location	IP Address	Software Stack	Content	Display Info
Lobby		Mac OS	Image files – 400 x 400 .JPG	4 – 42" Touch Displays
		Unity	Text	
		xxx		

Installation Steps

After the onsite team has installed a fresh OS, the following steps should be used to load and configure the application:

iPad Applications

The following four (4) iPad applications are for visitors to use:

- Pet App
- Recipe App
- Size of the Prize App
- Coffee App

There is one (1) application for controlling the rooms in the Smucker Innovation Center (SIC)called the Presenter App.

Some iPad applications are created with XCode and some with Unity. All iPad apps are compiled and loaded with XCode.

Pet App

Introduction

The Pet App.

Table 12 - Pet App Display Information

Developed with	Uses Content from CMS	Other Programming	Content	End User
Unity	NO	xxx	Text & Images	Guest

Installation steps

The following steps should be used to load the application:

Recipe App

Introduction

The Recipe App displays recipes that are managed in the CMS. The contents are a combination of images and text. Once loaded to the iPad, the end user sees a picture of the finished food item, the ingredients, and the instructions for making it.

Table 13 - Recipe App Display Information

Developed with	Uses Content from CMS	Other Programming	Content	End User
XCode	YES	xxx	Text & Images	Guest

Installation steps

The following steps should be used to load the application:

Size of the Prize App

Introduction

The Size of the Prize App.

Table 14 - Size of the Prize App Display Information

Developed with	Uses Content from CMS	Other Programming	Content	End User
XCode	YES	xxx	Text & Images	Guest

Installation steps

The following steps should be used to load the application:

Coffee App

Introduction

The Coffee App.

Table 15 - Coffee App Display Information

Developed with	Uses Content from CMS	Other Programming	Content	End User
Unity	NO	xxx	Text & Images	Guest

Installation steps

The following steps should be used to load the application:

Presenter App

Introduction

The Presenter App.

What Presenter App does in each room:

Table 16 - Presenter App Functionality

Room	Functionality
Rotunda	[redacted]
Pet Family Room	[redacted]
Commodities	[redacted]
Emerging Tech	[redacted]
Coffee House	[redacted]
Coffee College	[redacted]
Beverage Lab	[redacted]
Food Lab	[redacted]

Room	Functionality
Culinary College	[redacted]
Big Ideas	[redacted]
Table Room	[redacted]

Installation steps

The following steps should be used to load the application:

Websites

The following websites related to the SIC:

Event Tool

Introduction

The Event Tool website

Administration steps

Customer Communication

Introduction

The Customer Communication website

Administration steps

Other Applications

Power Point Control

Introduction

The Power Point Control application is used to control presentations where the content is primarily PowerPoint slides. It allows the presenter to advance to the next slide, skip slides, etc. PPT Control is currently only designed to run on Mac OS.

Functionality

The application works by [redacted]

Installation steps

After the onsite team has installed a fresh OS, the following steps should be used to load and configure the application:

Power Point Tool – (Exporter Tool)

Introduction

The Power Point Tool is used to convert Power Point files (.pptx) into the components needed for a presentation in the Rotunda room. It is used only in the Rotunda room and is configured to output the content to the exact resolution of the video processor and projection system there.

Functionality

The application works by [redacted]

Installation steps

The application is installed on a Windows 10 computer by running the installer.

Appendix A – Windows Installation and Preparation