

//build/

First Things First...

- Go to <http://aka.ms/codelabs>
- Navigate to 'CodeLabs-Data' Repo.
- Login into Azure: <https://manage.windowsazure.com>
- Suffix @build16.onmicrosoft.com to the username to use Azure account
- E.G.: build121150@build16.onmicrosoft.com
- Open & Run the PartsUnlimited Solution (C:\CodeLabs-Data\Module1\Source\EX1\Begin\PartsUnlimited.sln)

Data CodeLabs

Module 1 – Gain Near-real time Insights with IoT Analytics

Romit Girdhar & Sam Chandrashekar
Microsoft

#Build2016

Key Takeaways

IoT Analytics

Understand the end-to-end flow of IoT analytics and what is involved in performing Near-Real time analytics

Learn how to visualize your data and act upon events within seconds to make your applications smarter!

Event Hubs & Stream Analytics

Learn how the two technologies work and understand their capabilities.

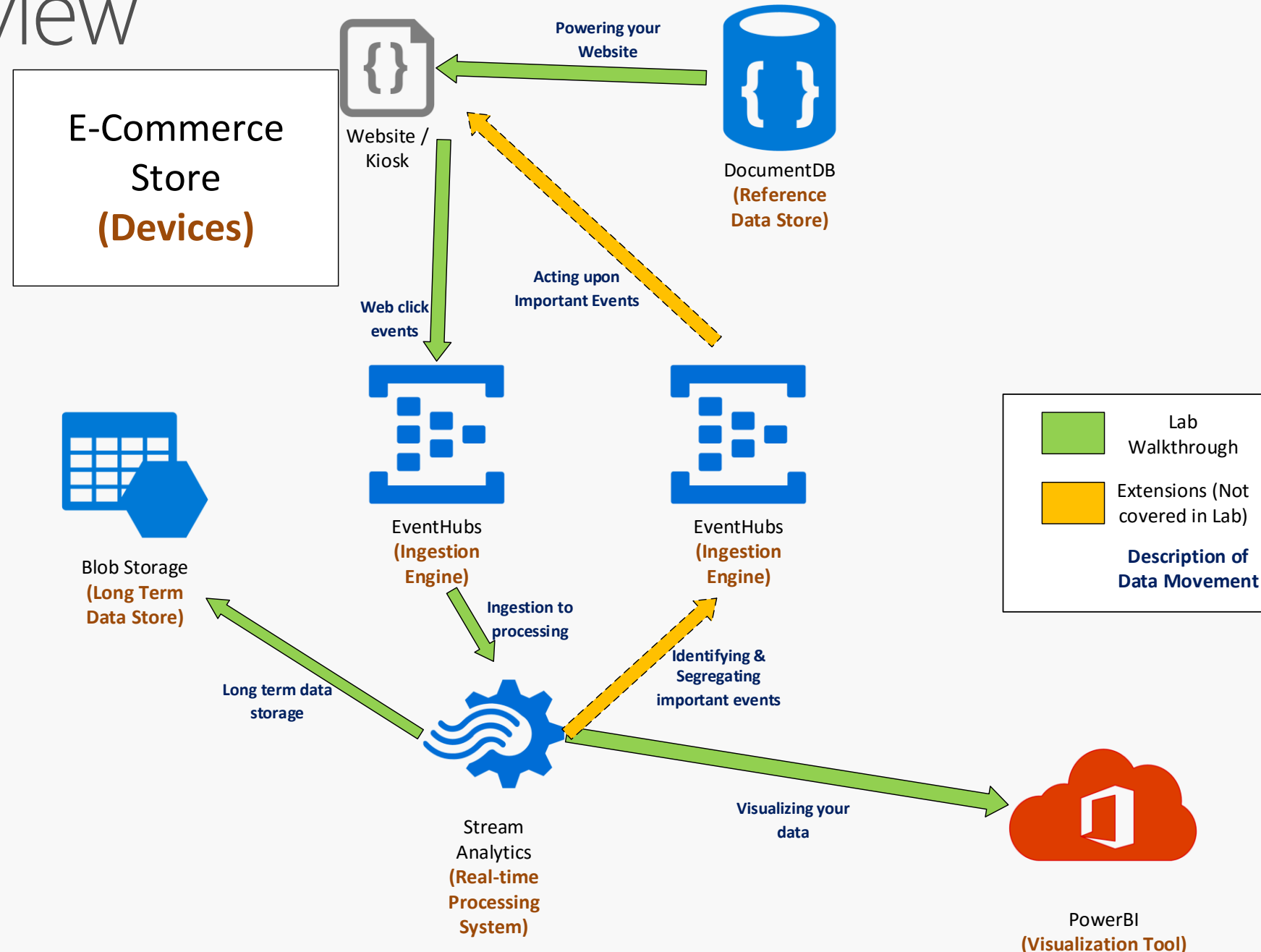
Integration

Understand How to integrate Event Hubs into your Application.

Get guidance around embedding PowerBI into your applications.

Solution Overview

- Retail Scenario
- Data gets sent to your Data Ingestion System from your website.
- The Data Ingestion system sends the data to the Real-time processing system, which analyzes the data and sends it to multiple sinks
- PowerBI (or any other visualization tool) is used for visualization of data



Start the Website

- Start PartsUnlimited solution (Source->Ex1->Begin)
 - **Wait for your Dependencies & References to Load**
- In PartsUnlimited->config.json, Check that the URL & Key for the DocDB exist!
- Run the Website

Create Event Hubs

- Go to the (Old) Azure Portal:
<https://manage.windowsazure.com/>
- Click on New -> EventHubs -> Custom Create
- Creation Values:
 - EH Name: **data-lab-eh**
 - Region: **Central US**
 - Service Bus Namespace: **datalab-ns-{SuffixNumber}**
 - Partition Count: **4**
 - Retention Period: **1 day**
- Create Rules (On EventHubs Level):
 - **SendRule** -> For Sending Data ; **ReceiveRule** -> For Receiving Data

Integrate Event Hubs

- Create a new WebAPI Controller in the 'api' folder called 'EventsController'
- Paste the code snippet for sending events to EH.
- Go to Views -> Store -> Details.chnml
- Paste the JavaScript code Snippet for calling the EventsController.
- Run the Code!

View Events in EventHubs

- Open Service Bus Explorer
- Click on File -> Connect
- In the drop down menu, pick 'Enter Connection String...'
- Enter the RootManagerSharedAccessKey Connection String
- Create a Partitioned Listener
- See the events come through!

EventHubs Generator

- Run the EventHubs Data Generator
- Can we found in:
Tools/EventHubsDataGen/PartsUnlimitedDataGen.exe
- Use the following Args:

PartsUnlimitedDataGen.exe <EH 'Send' Rule Connection String> <EH Name>

- Keep it running!

Create Stream Analytics

- Go to the (Old) Azure Portal:
<https://manage.windowsazure.com/>
- Click on New -> Stream Analytics -> Quick Create
- Creation Values:
 - Name: **data-lab-asa-{Suffix Number}**
 - Location: **Central US**
 - Storage Account: **Create a New Storage Account**

Configure ASA

- Add an Input
 - EventHubs
 - Create a new Consumer Group: **asa**
 - Alias: **CallStream**
- Add Blob Output
 - Alias: **BlobSink**
- Add PowerBI Output
 - Alias: **PowerBISink**
 - You will need to authorize ASA to send data to PowerBI

Write the ASA Query

- Go to the Query Tab
- Write the SQL-lite query to count the number of product views, adds and bought.

```
1 WITH AllEvents AS (  
2 SELECT  
3     productId, title, category, type, Count(title) AS [total]  
4 FROM  
5     CallStream  
6 GROUP BY  
7     productId, title, category, type, TumblingWindow(minute, 10)  
8 )  
9 SELECT * INTO PowerBISink FROM AllEvents  
10  
11 SELECT * INTO BlobSink FROM CallStream  
12
```

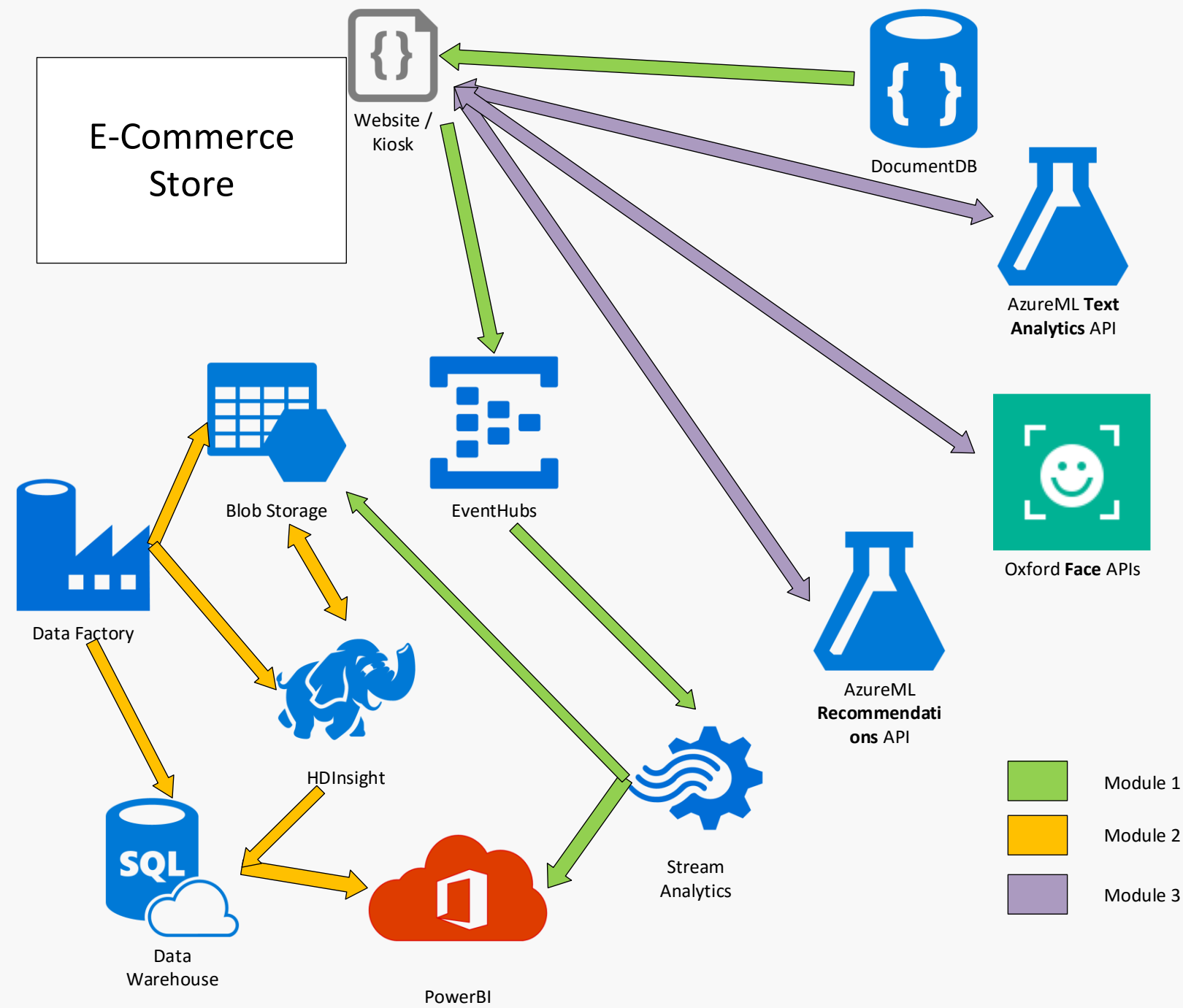
Check out Blob Storage (Optional)

- Go to your Blob Storage account (in the **Old Portal**)
- Check to make sure your data is in the container that you created!

Integrate with PowerBI

- Go to PowerBI.com
- Login with your Azure credentials
- You should see the Datasets already created!
- Let's create the following Charts:
 - Funnel Chart
 - Bar chart
 - Card Chart

Architecture Across The Data CodeLab Modules



Please Complete An Evaluation Form

Your input is important!

Required Slide

*delete this box when your slide is finalized



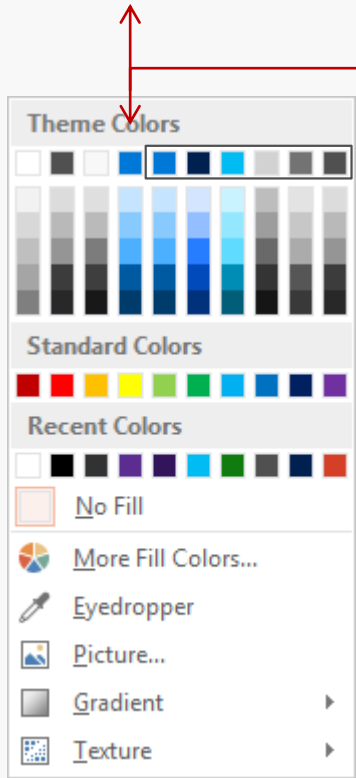
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Don't Forget to Delete Your Resource Groups

Slide palette info

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Theme Colors

Standard Colors

Recent Colors

No Fill

More Fill Colors...

Eyedropper

Picture...

Gradient

Texture

Select the 4th color from the left for subheads and 1st level non-bulleted text color, or wherever "color" text is preferred over the default black/white text

Accent colors 1-6 – (6 Theme Colors to the far right)

Text Dark 2

Accent 1

Accent 2

Accent 3

Accent 4

Accent 5

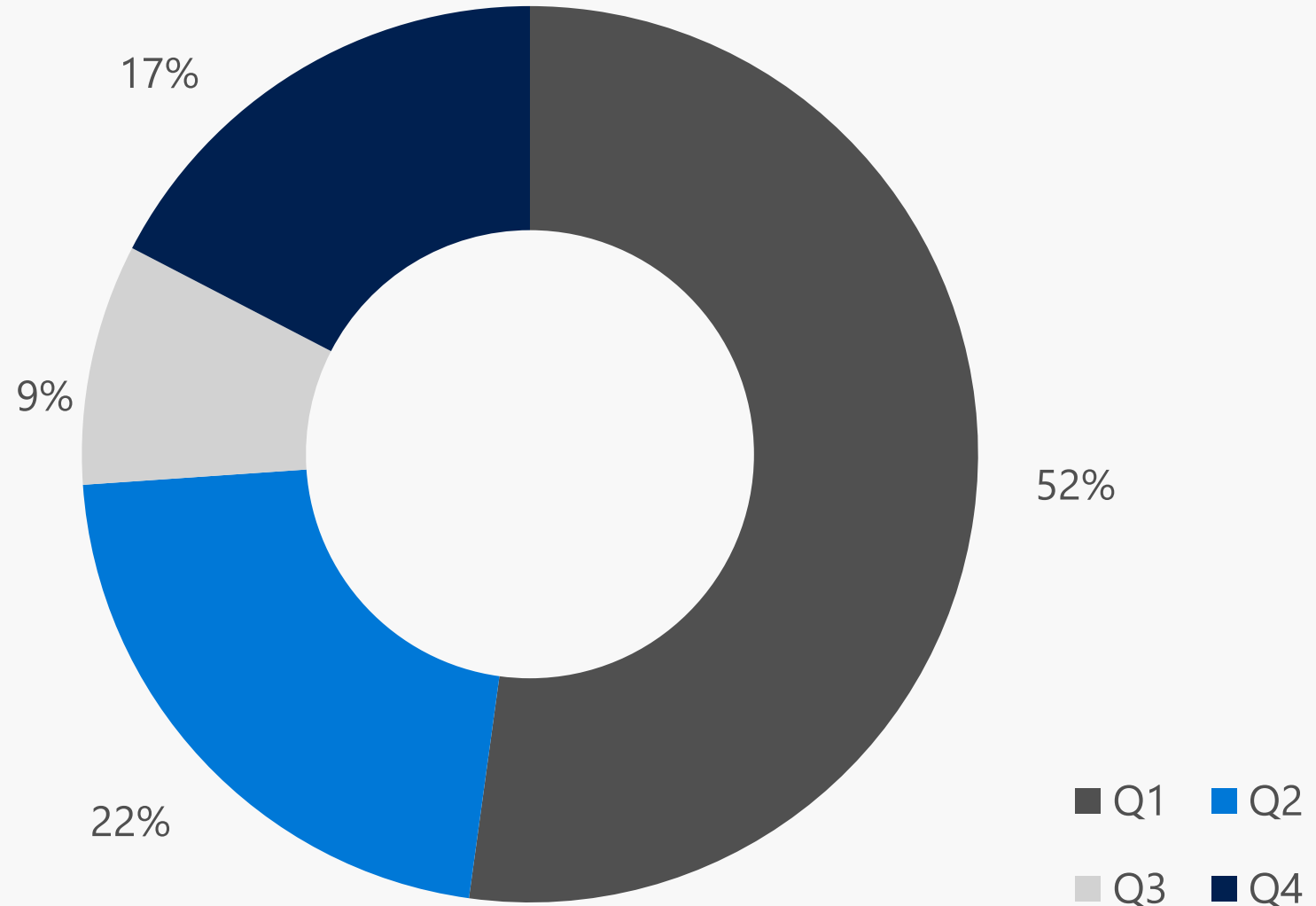
Accent 6

Use **Accent 1** as the main accent color. Use **Accent 2** and **Accent 3** when additional colors are needed.

Use **Accents 4-6** sparingly – only when more colors are necessary.

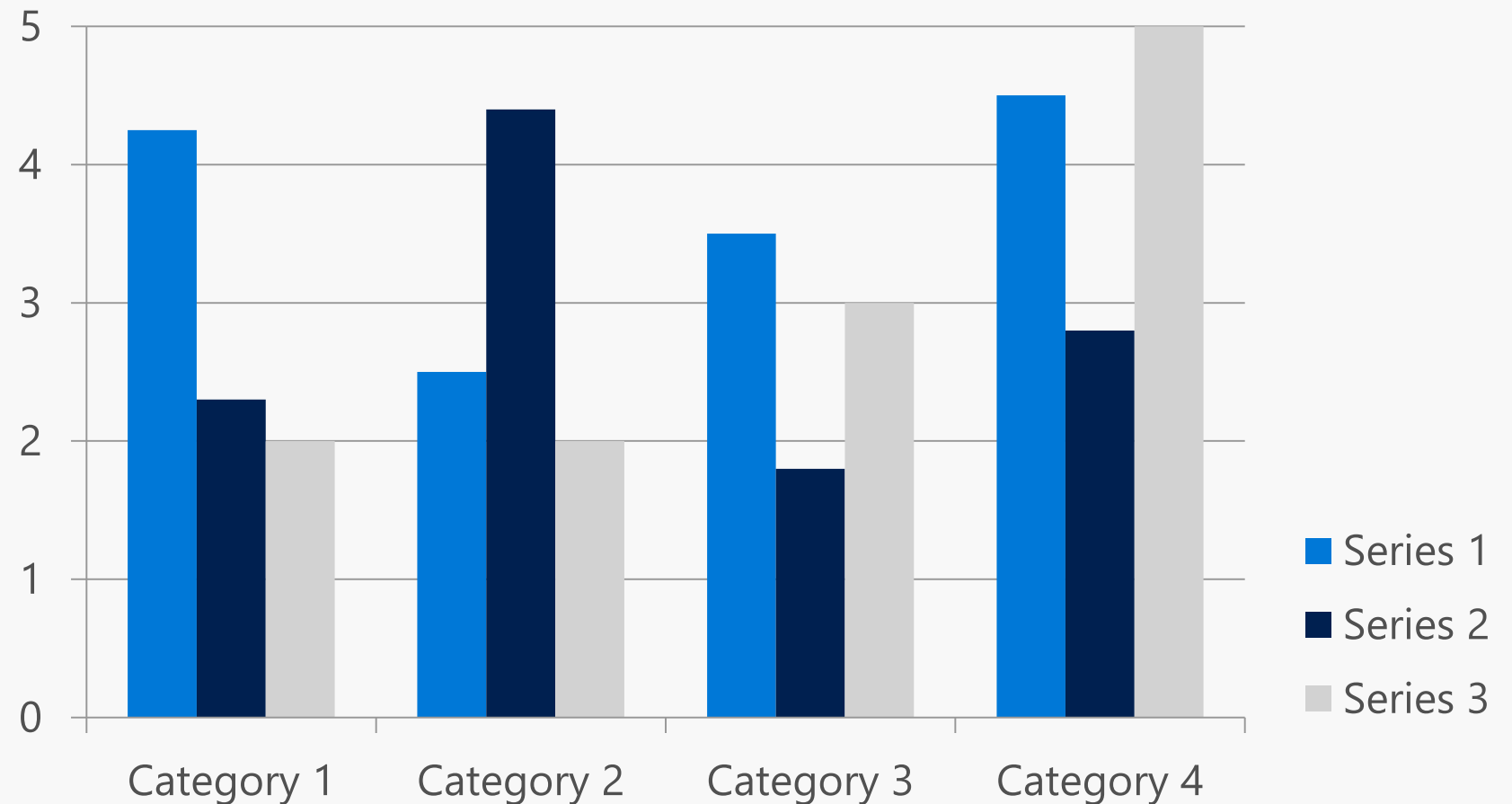
Charts

For content:
Type is what
articulates the
message. Text
doesn't need to
be bulleted. Text
size can reinforce
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Table

This is a content
box, always
24pts and
sentence case.

[illegible]

Diagram with text

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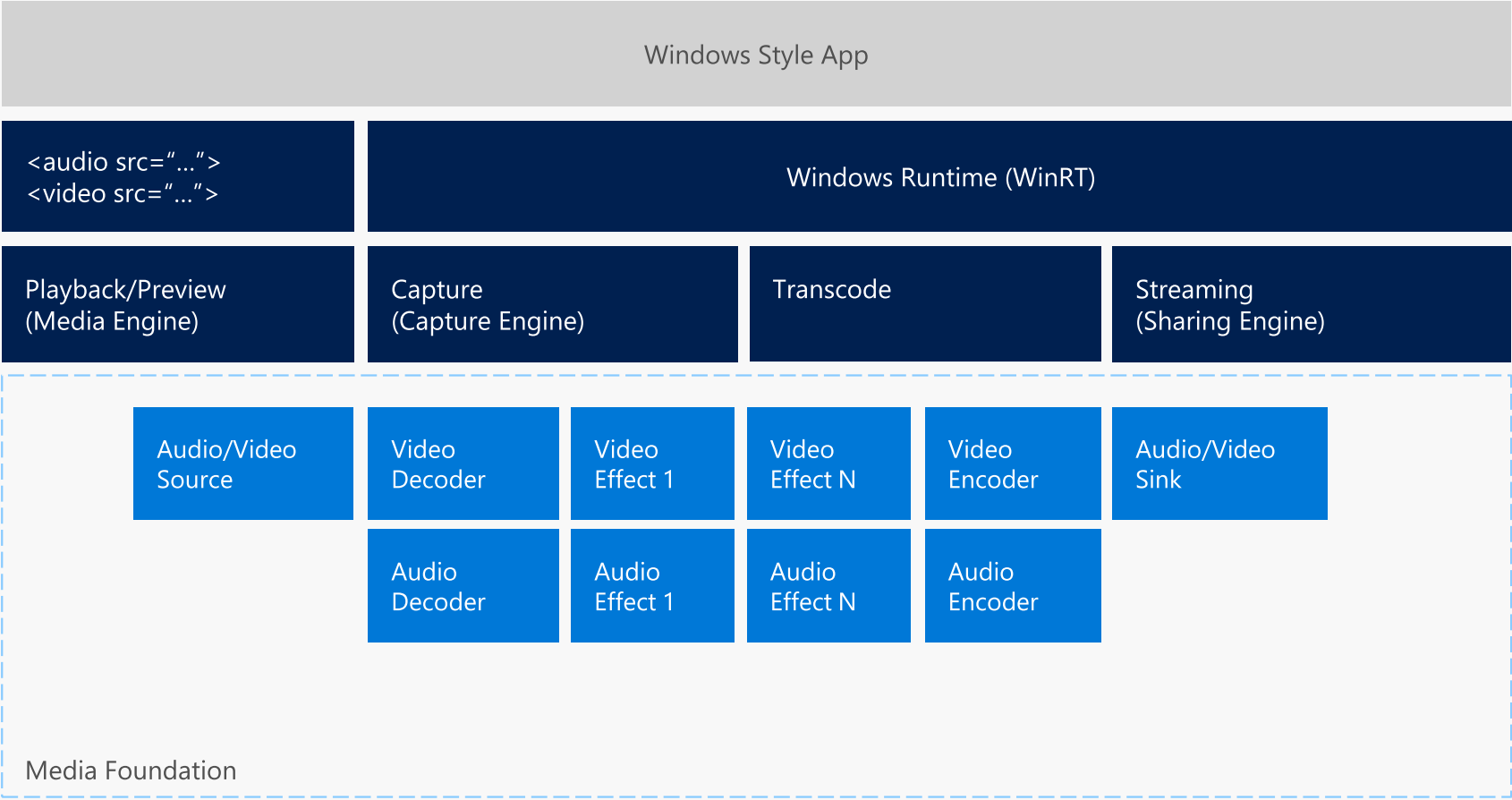
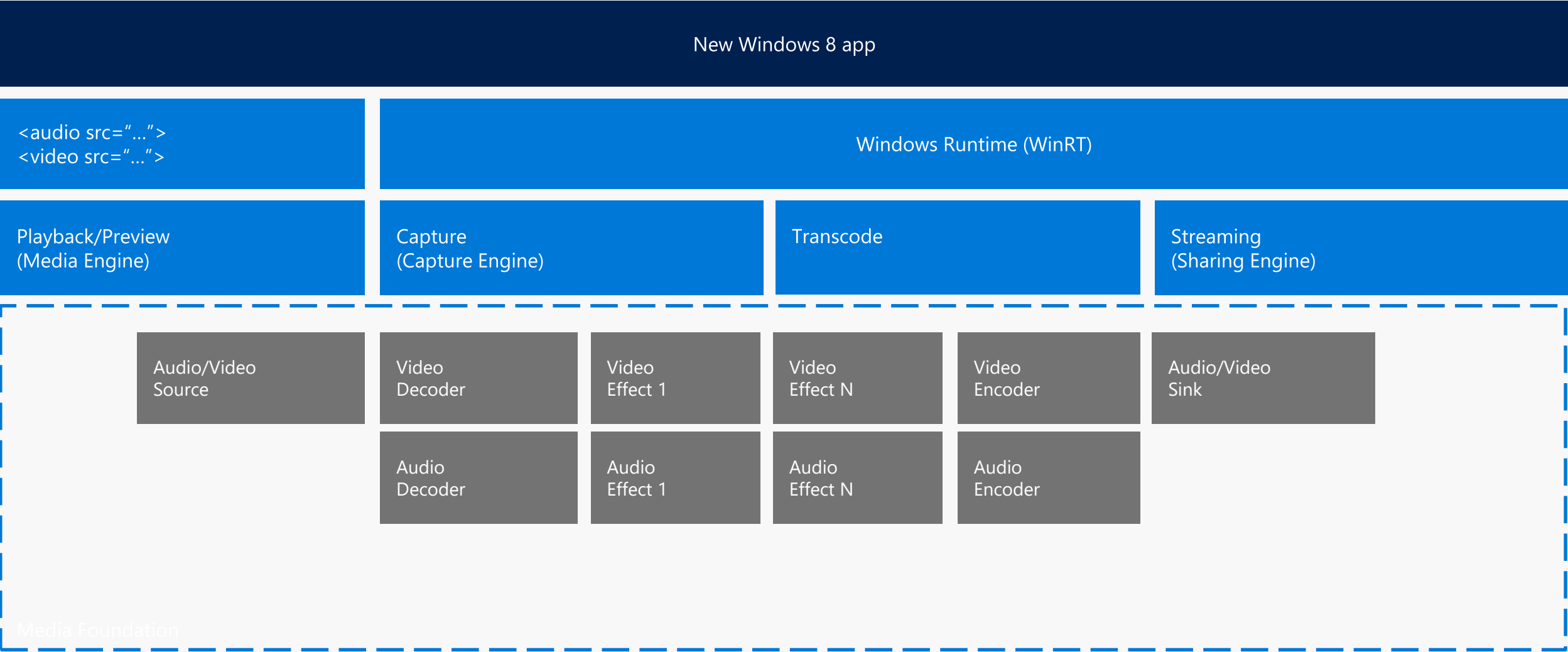


Diagram without text



Video

Demo

Speaker name

Photo layout 1



Microsoft brand guidelines

Looking for more slide resources?

Brand guidelines for PowerPoint templates is a separate slide deck that provides an overview of the Microsoft brand, guidelines, resources, tips and much more.

A few of the slides are shown at right.

Download from:
<https://microsoft.sharepoint.com/teams/BrandCentral/Pages/Presentations.aspx>

Brand photography selections, 1 of 3

Below are thumbnails of a few of the many photos that you can find on Brand Tools. In show mode, click each image to download higher resolution copies.



Accessibility

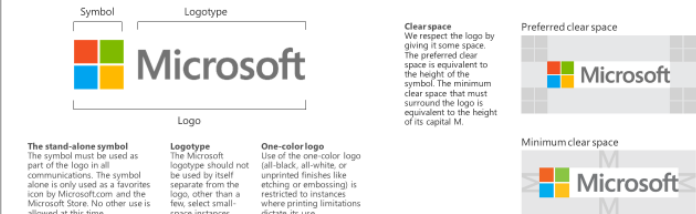
Type and background combinations must meet a minimum **4.5:1 contrast ratio or greater** for accessibility. Examples below demonstrate correct color use for on-screen applications. Colors shown with **notched corners** require black/dark text to be accessible.

Light Yellow #F1E78C P00000	Light Orange #F1948A P00000	Light Magenta #E680B8 P00000	Light Purple #9999FF P00000	Light Blue #6699CC P00000	Light Teal #66CC99 P00000	Light Green #99CC66 P00000	Light accent colors	
Yellow #F1E78C P00000	Orange #F1948A P00000	Red #C00000 P00000	Magenta #990099 P00000	Purple #660066 P00000	Blue #0000FF P00000	Teal #008080 P00000		Microsoft 8 brand colors
		Dark Red #C00000 P00000	Dark Magenta #990099 P00000	Dark Purple #660066 P00000	Dark Blue #0000FF P00000	Dark Teal #008080 P00000	Dark accent colors (+ one mid accent color)	
				Mid Blue #003366 P00000		Dark Green #008000 P00000		
			White #FFFFFF P00000	Light Gray #D3D3D3 P00000	Mid Gray #999999 P00000	Dark Gray #666666 P00000	Dark Black #000000 P00000	White, black and gray accent colors
For more information on accessibility, visit: microsoft.com/enable .								

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Microsoft logo

The logo has two components: the symbol with the multiple squares of color, which symbolize the company's diverse portfolio of products, and the logotype in the Segoe typeface, which is used in our products and marketing communications.



Device photography

Where to find

Microsoft device photos can be found on Brand Central...
<https://microsoft.sharepoint.com/teams/BrandCentral/>
(search on the product name and filter by asset type)
... and on News Center on Microsoft.com:
<http://news.microsoft.com/> (click on Our Products)

OEM & MS hardware (PC, tablet and phone) can be found on Featured Devices
<https://www.featureddevices.com/>

Hardware guidelines

Use the latest devices from the current year
Screen captures should be up-to-date

Remove OEM logos when possible

Drop shadows for devices only

Use drop shadows to provide subtle depth
Added drop shadows should appear as natural as possible



Section title

Section title

“If you could only sense how important you are to the lives of those you meet; how important you can be to the people you may never even dream of. There is something of yourself that you leave at every meeting with another person.”

FRED ROGERS

Software code slide

This slide layout uses Consolas, a monotype font which is ideal for showing software code.

Call to Action

- Use this slide to list resources, white papers, videos and links.
- Let attendees know their next step after seeing this session.
- Re-visit Build on [Channel 9](#).
- Continue your education at [Microsoft Virtual Academy](#) online.

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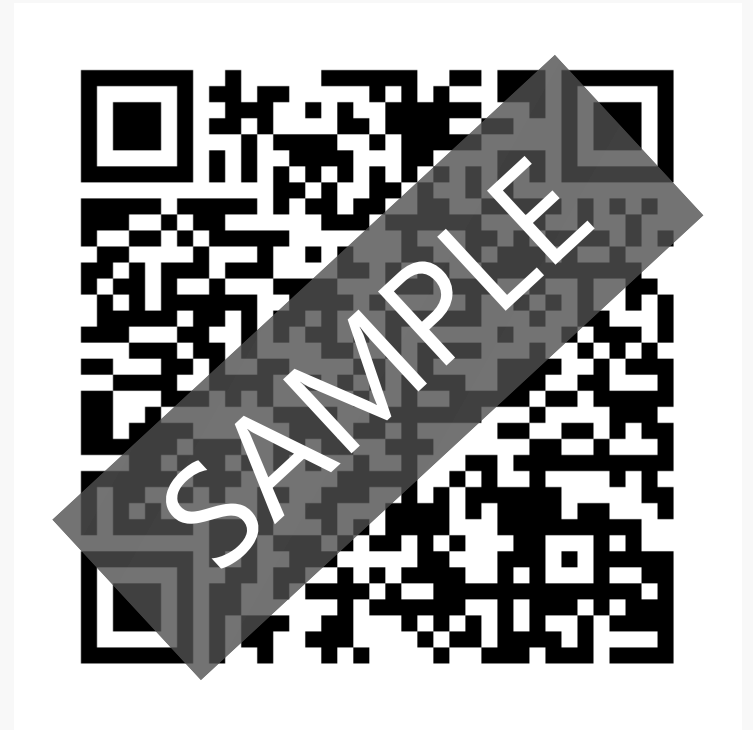
Your input is important!

Required Slide

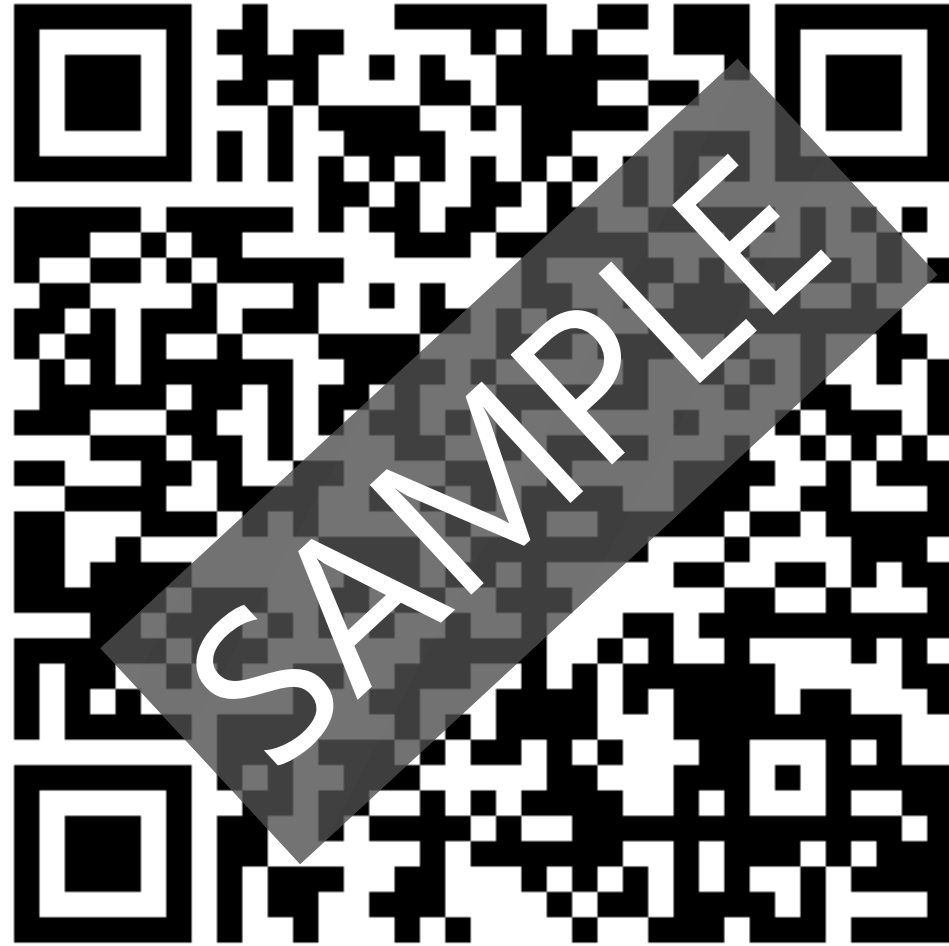
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Presentation title goes here

Speaker name
Title

Preferred text layout (no bullets)

Main topic 1: size 40pt

Size 20pt for the subtopics

Size 20pt for the subtopics

Main topic 2: size 40pt

Size 20pt for the subtopics

Size 20pt for the subtopics

Main topic 3: size 40pt

Size 20pt for the subtopics

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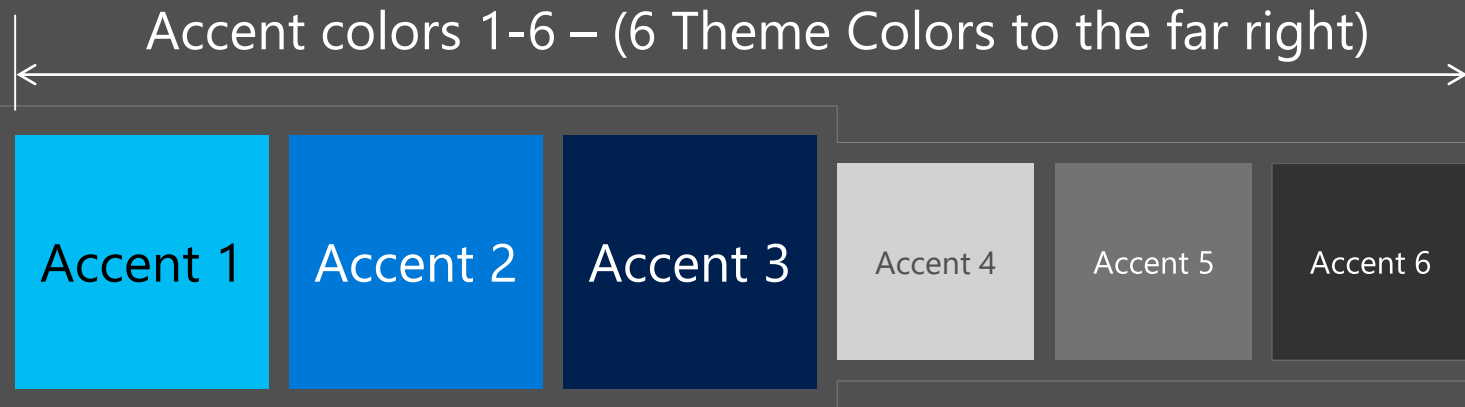
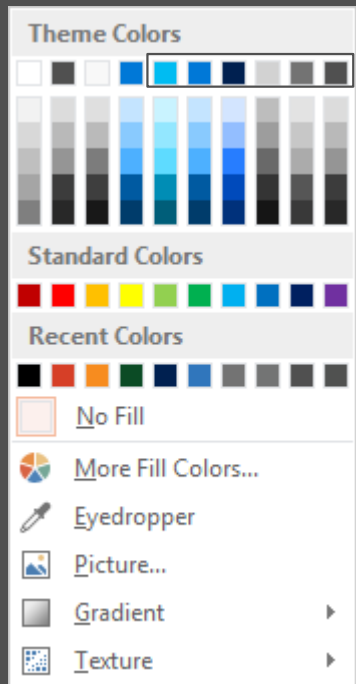
Bullet points layout with subtitle

Subtitle

- Example of a bulleted slide with a subhead
 - Set the slide title to "Sentence case"
 - Set subheads to "Sentence case"
- Hyperlink style
 - www.microsoft.com

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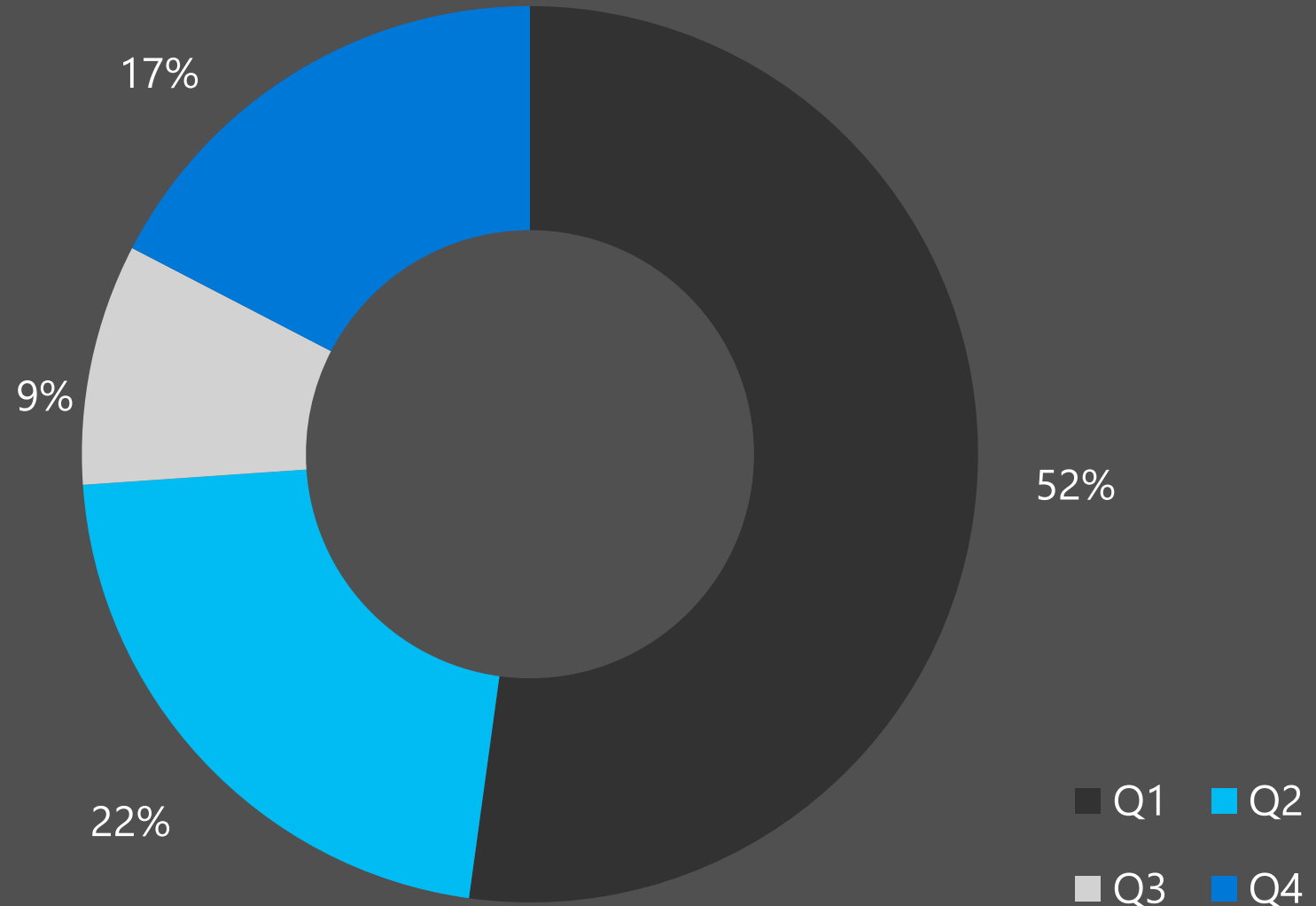


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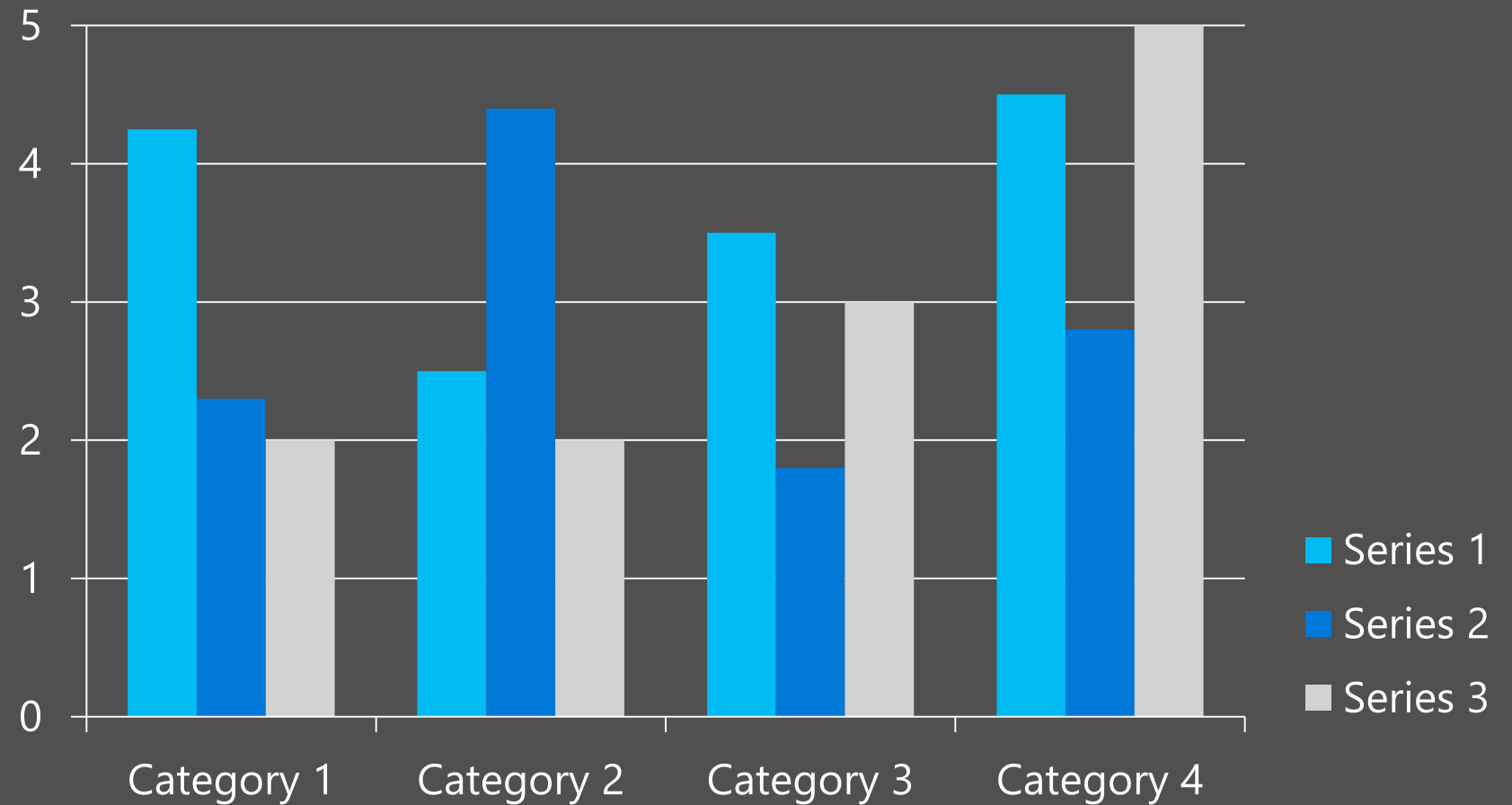
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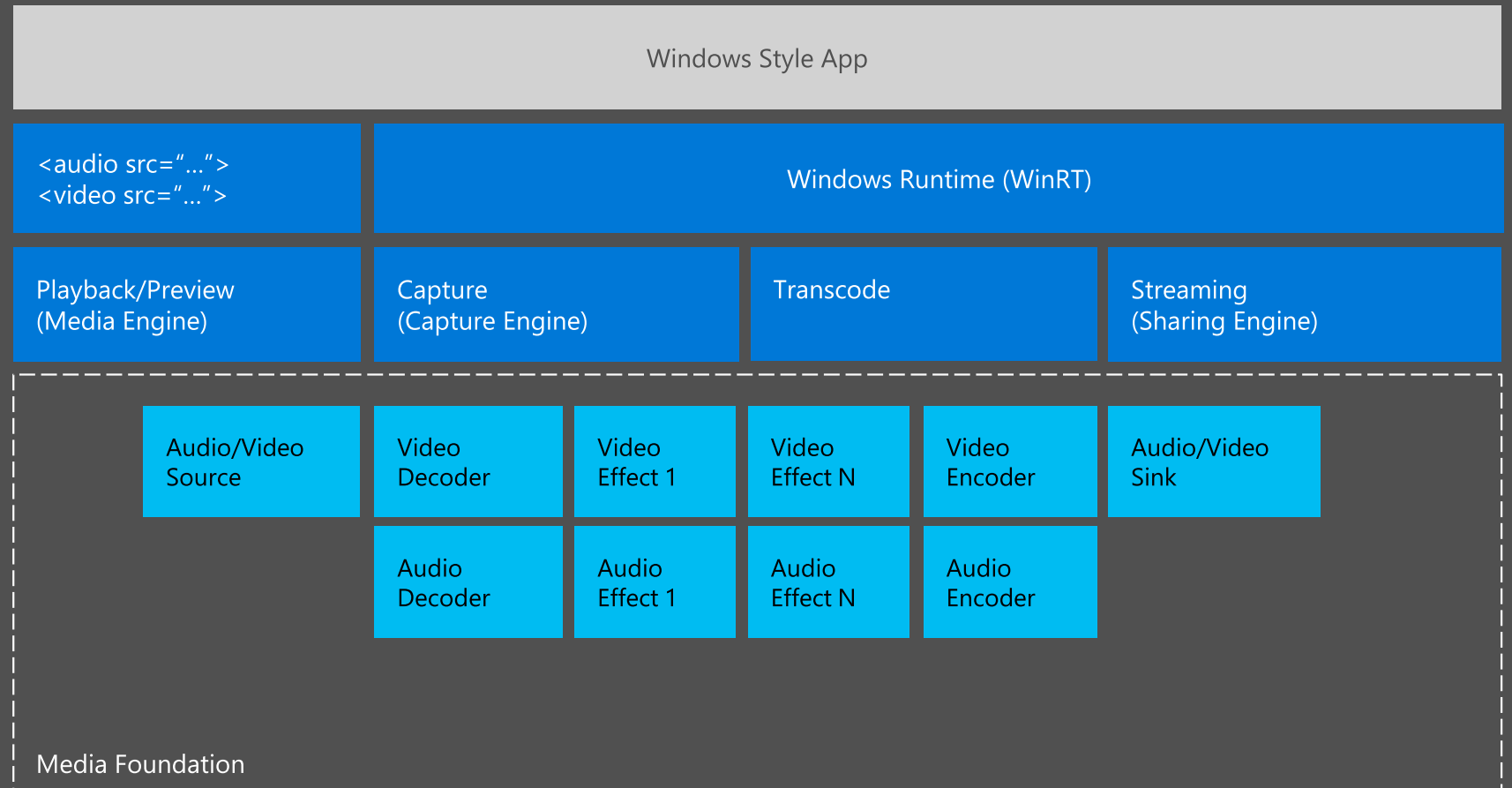
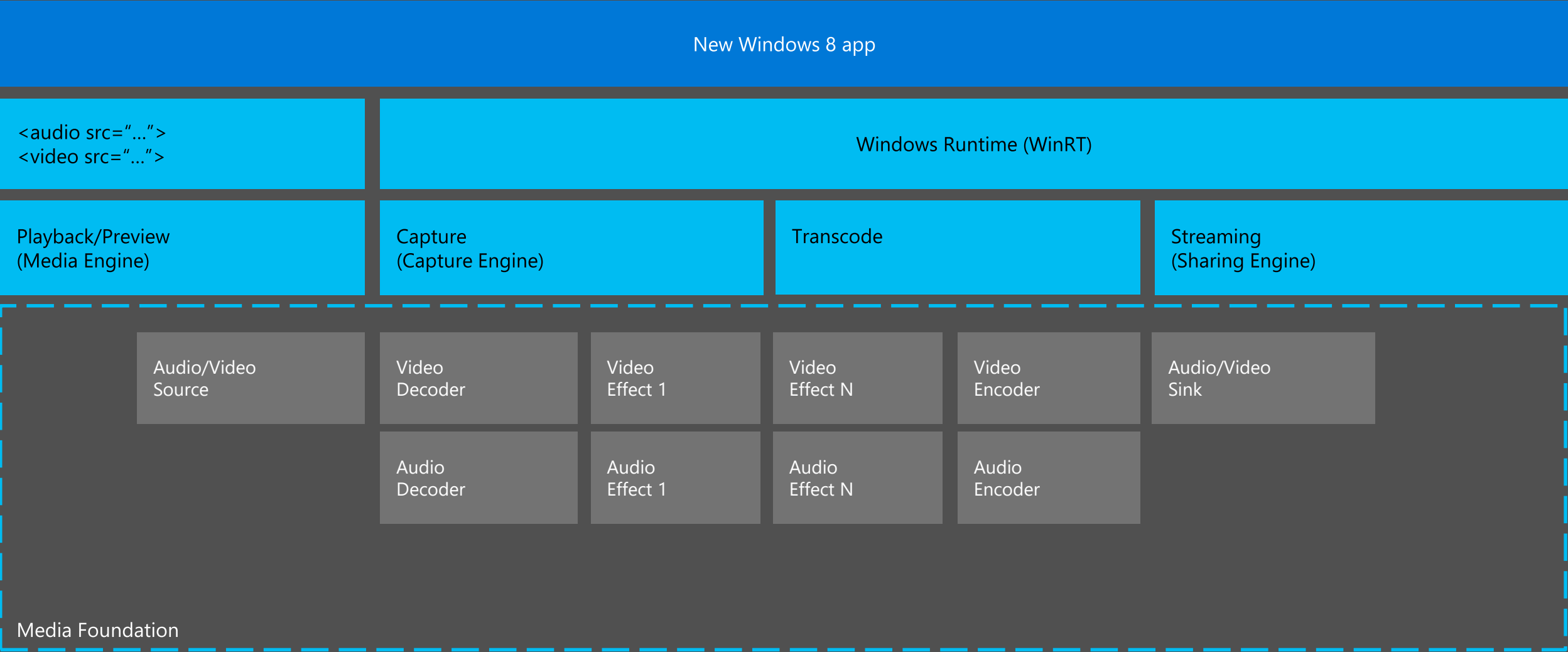


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