

UofI CS 416 - Narrative Visualization - Bitcoin Timeline

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Messaging

The message communicated throughout the visualization is how Bitcoin's value (compared to the US Dollar) has changed throughout its lifetime.

Narrative Structure

The structure chosen for the visualization was an interactive slideshow that consists of six (6) scenes each representing a time period. The first 5 scenes are in temporal order while the last scene is a complete overview (big picture). Within each scene a user can read a brief summary and see details of specific events using the chart and annotations displayed.

Visual Structure

All scenes follow the same visual structure. At the top of the scene is the title section which includes the title and a sub-header that displays the time period of the data for the scene. The title is important as it sets the tone for what the scene is about and informs the user the time period of the data that is displayed. Underneath the title section, there are two columns. The first column on the left is smaller and contains a brief summary and analysis of the data for the period. This summary was placed on the left side considering that most people reading this will start here first to get the broad picture. The second column to the right has a line graph with time on the x-axis and the BTC USD value on the y-axis. Annotations are added to the graph to highlight when specific events occurred and see how that relates to the price of bitcoin. These annotations appear as blue bubbles that encourages the user to make contact with to see more details. Underneath the chart are a series of controls used to change the scenes, it has simple 'next/previous' buttons and a drop-down that enables the user to quickly jump to a scene.

Bitcoin Timeline

Here we'll be taking a look at how the value of Bitcoin has changed throughout its lifetime. The story is divided into different chapters that can be changed by using the controls underneath the chart.

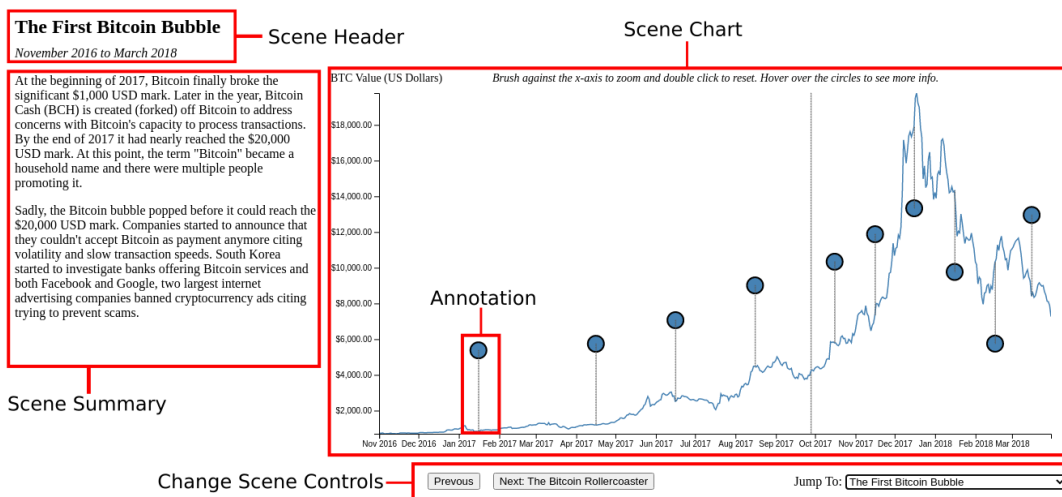


Figure 1: Visual Structure

Scenes

The scenes in the Bitcoin Timeline visualization are:

1. The Inception of Bitcoin: January 2009 - October 2011
2. Bitcoin Adoption: November 2011 - October 20216
3. The First Bitcoin Bubble: November 2016 - March 2018
4. The Bitcoin Rollercoaster: April 2018 - January 2020
5. The Second Bitcoin Bubble: February 2020 - June 2021
6. Complete Overview: January 2009 - June 2021

The reason why the scenes are divided the way they are as that each represent unique trends in Bitcoin. This leads to each scene having common recurring themes and varying period lengths. The scenes are in temporal order since the data we are viewing is the change of Bitcoin's value over time.

Annotations

In each scene, the line graph has little bubbles placed on the line throughout the whole scene. Hovering over the bubble produces a tooltip with information relevant to that period of time of the graph. The tooltip approach was chosen due to the scenes having many annotations and displaying their content all at once would be overwhelming information to the user. The brief summary to the right already highlights the main message of the scene, therefore the annotations provide further details when the user wants to “dig in”. Since the annotations are time-based, they are forced to change within each scene to match the new time period the scene represents.

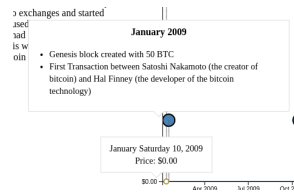


Figure 2: Annotation Tooltip

Parameters

The parameters of the visualization are just the start date and end date for each scene. As each scene changes, the graph is refreshed to only display data within the period defined by the scene. The same refresh is applied to the annotations. The specific dates for each scene are noted in the “Scenes” section.

Triggers

The triggers in the Bitcoin Timeline visualization are: - The Scene Controls (Previous/Next/Jump To): these control elements allow the user to switch between different scenes. The affordances to communicate them to the user are displaying them in standard areas of switching between slides. There is also an introduction at the top of the visualization under the header that encourages user to interact with these controls.

- Mouse hover on the annotations: This triggers a tooltip to appear that displays the content of the annotation. There is a message at the top of the chart encouraging the user to hover their mouse over the blue circles
- Mouse hover on the line graph: This triggers a tooltip on the linegraph that displays the date and price of bitcoin.

- Brushing on the x-axis: This triggers a zoom on the chart to the selected/brushed area. There is a message at the top of the chart explaining how to zoom and reset the zoom. In addition, the cursor changes to cross-hairs when passing the mouse over the graph and there is a line that follows the cursor on the x-axis

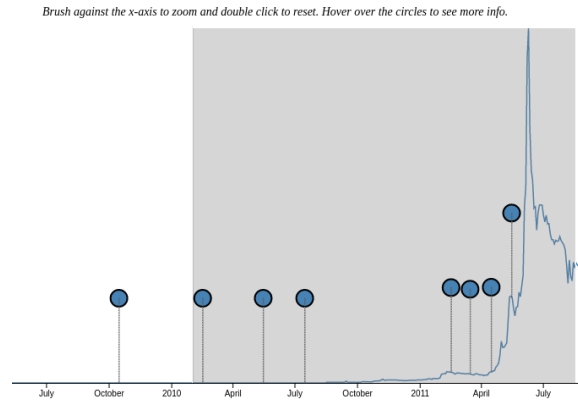


Figure 3: Brush To Zoom