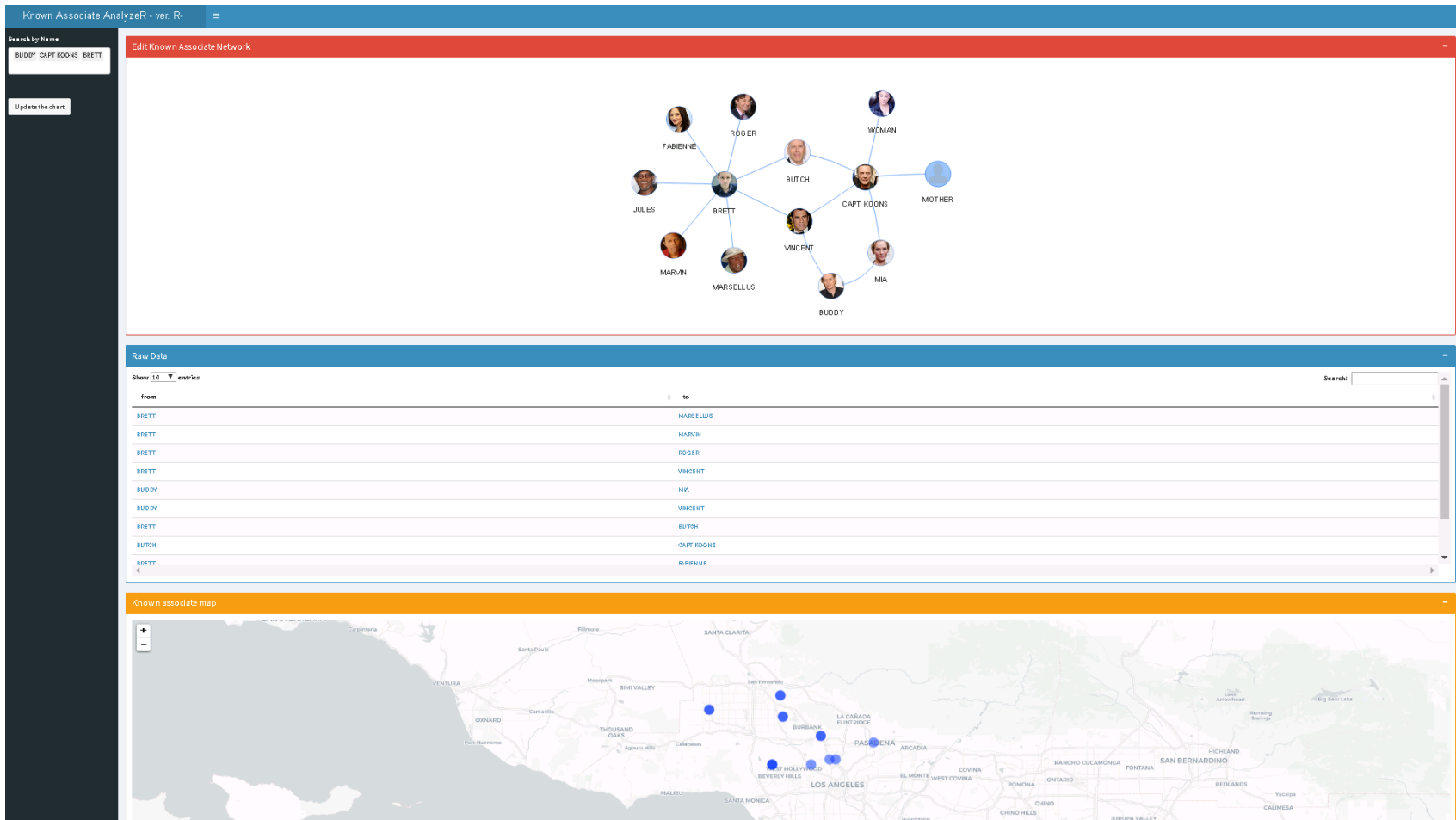# R Meet Up

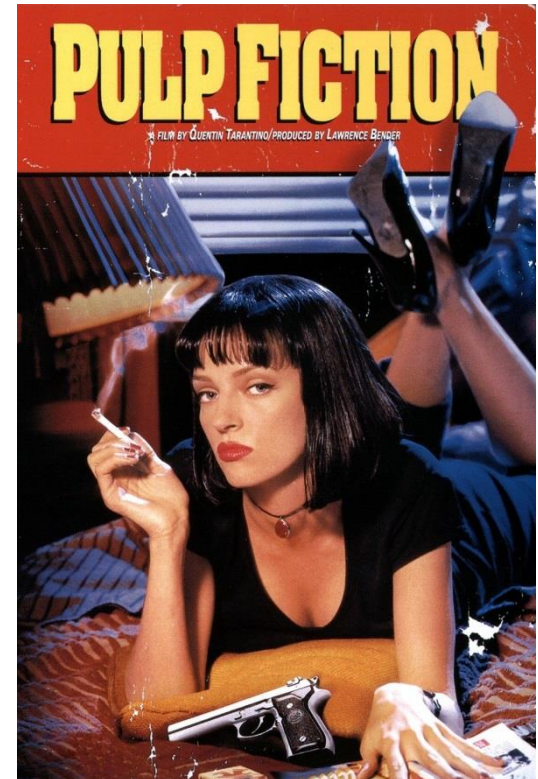## visNetwork, DT::datatable, leaflet

George Kikuchi

Problem

- Criminals often co-offend

- Cumbersome process to search multiple data sources to identify co-offending patterns

- Mainframe-based system as the PPD users' go-to resources

R Shiny Integration

Toy Data

- Relationship data from Pulp Fiction

- Co-appearance is defined as a linkage

  - Sources:

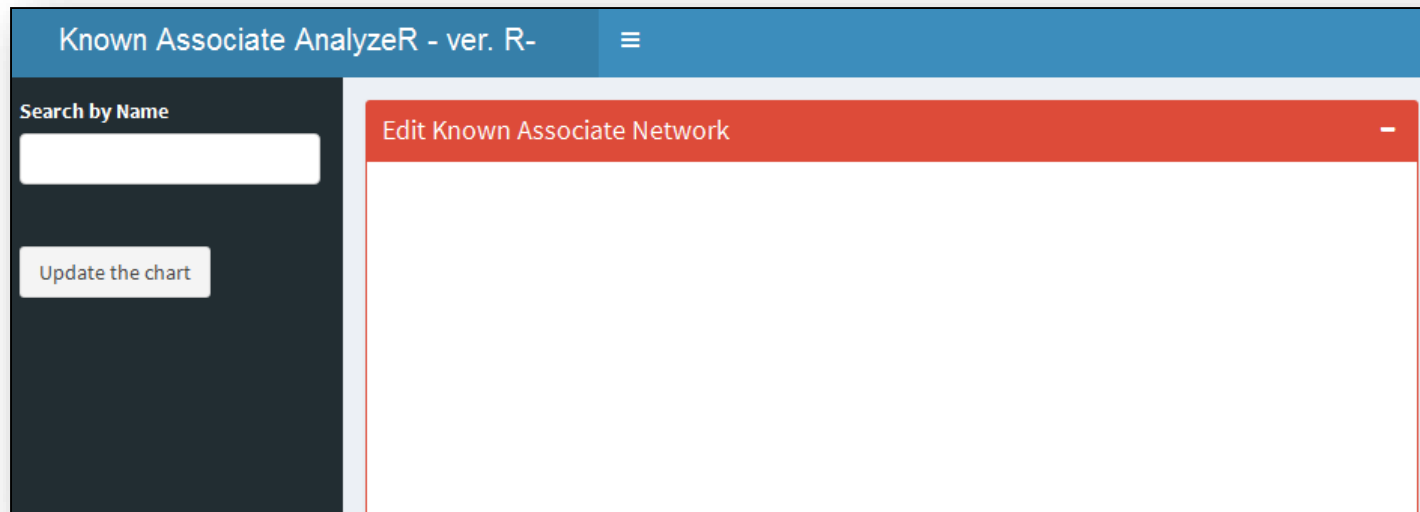   - http://www.moviegalaxies.com
    - https://la.curbed.com

Building Blocks

- Shiny
- Shinydashboard
- visNetwork
- DT datatable
- leaflet

Building Blocks

- Shiny
- Shinydashboard
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```r
# user interface
ui <- dashboardPage(
  dashboardHeader(title = "Known Associate AnalyzeR - ver. R-meetup", titleWidth = 400),

  dashboardSidebar(
    selectizeInput('character', choices = NULL, label="Search by Name", multiple = TRUE),
    actionButton("updateButton", "Update the chart")
  ),

  dashboardBody(
    fluidRow(
      box(title = "title",
          visNetworkOutput("network", width = "100%", height = "500px"),
          collapsible = TRUE, collapsed = FALSE,
          status = "danger", solidHeader = TRUE, width= 12


      )
    )
  )
)

# server side functions
server <- function(input, output, session){

  # server side functions go here

  }

shinyApp(ui, server)
```
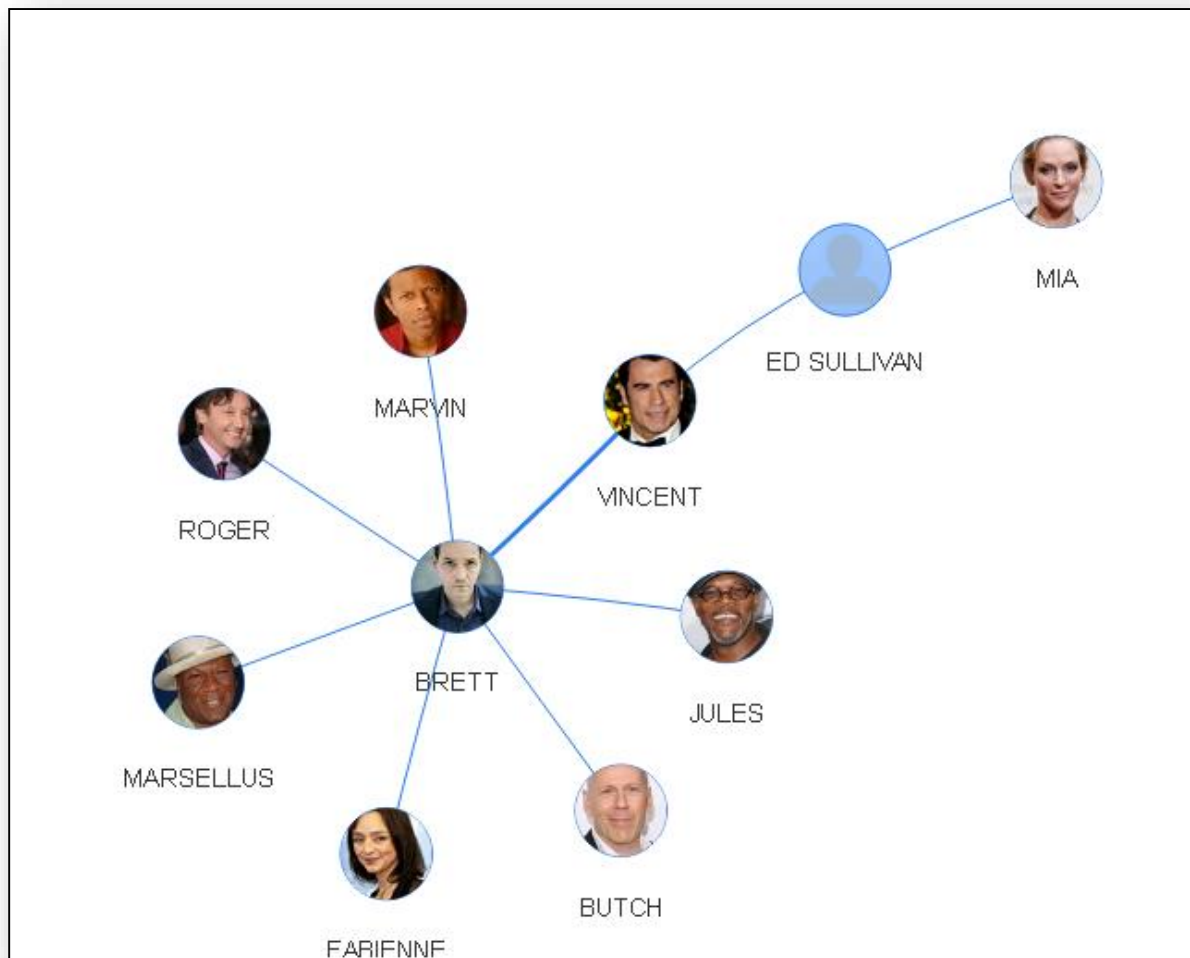
Building Blocks

- Shiny
- Shinydashboard
- **visNetwork**
- DT datatable
- leaflet

Node and Edge

visNetwork(nodes, edges)

```
> select(nodes.df, id)
# A tibble: 5 x 1
            id
         <chr>
1        BRETT
2        BUDDY
3        BUTCH
4   CAPT KOONS
5 ED SULLIVAN
```

```
> select(edges.df, -id)
# A tibble: 10 x 2
      from            to
     <chr>         <chr>
 1  BRETT      MARSELLUS
 2  BRETT         MARVIN
 3  BRETT          ROGER
 4  BRETT        VINCENT
 5  BUDDY            MIA
 6  BUDDY        VINCENT
 7  BRETT          BUTCH
 8  BUTCH     CAPT KOONS
 9  BUTCH      ESMARELDA
10  BUTCH      GAWKER #2
```

Building Blocks

- Shiny
- Shinydashboard
- visNetwork
- DT datatable
- leaflet

datatable(data.frame)

Show [10 ▼] entries   Search: [   ]

	from		to	
	[All]		[All]	
1	BRETT		MARSELLUS	
2	BRETT		MARVIN	
3	BRETT		ROGER	
4	BRETT		VINCENT	
5	BUDDY		MIA	
6	BUDDY		VINCENT	
7	BRETT		BUTCH	
8	BUTCH		CAPT KOONS	
9	BUTCH		ESMARELDA	
10	BUTCH		GAWKER #2	

Showing 1 to 10 of 102 entries   Previous [1] 2 3 4 5 … 11 Next

Building Blocks

- Shiny
- Shinydashboard
- visNetwork
- DT datatable
- leaflet

```
leaflet(map.df) %>%
    addProviderTiles(providers$CartoDB.Positron) %>%
    addCircleMarkers(lng=~lon, lat=~lat)
```
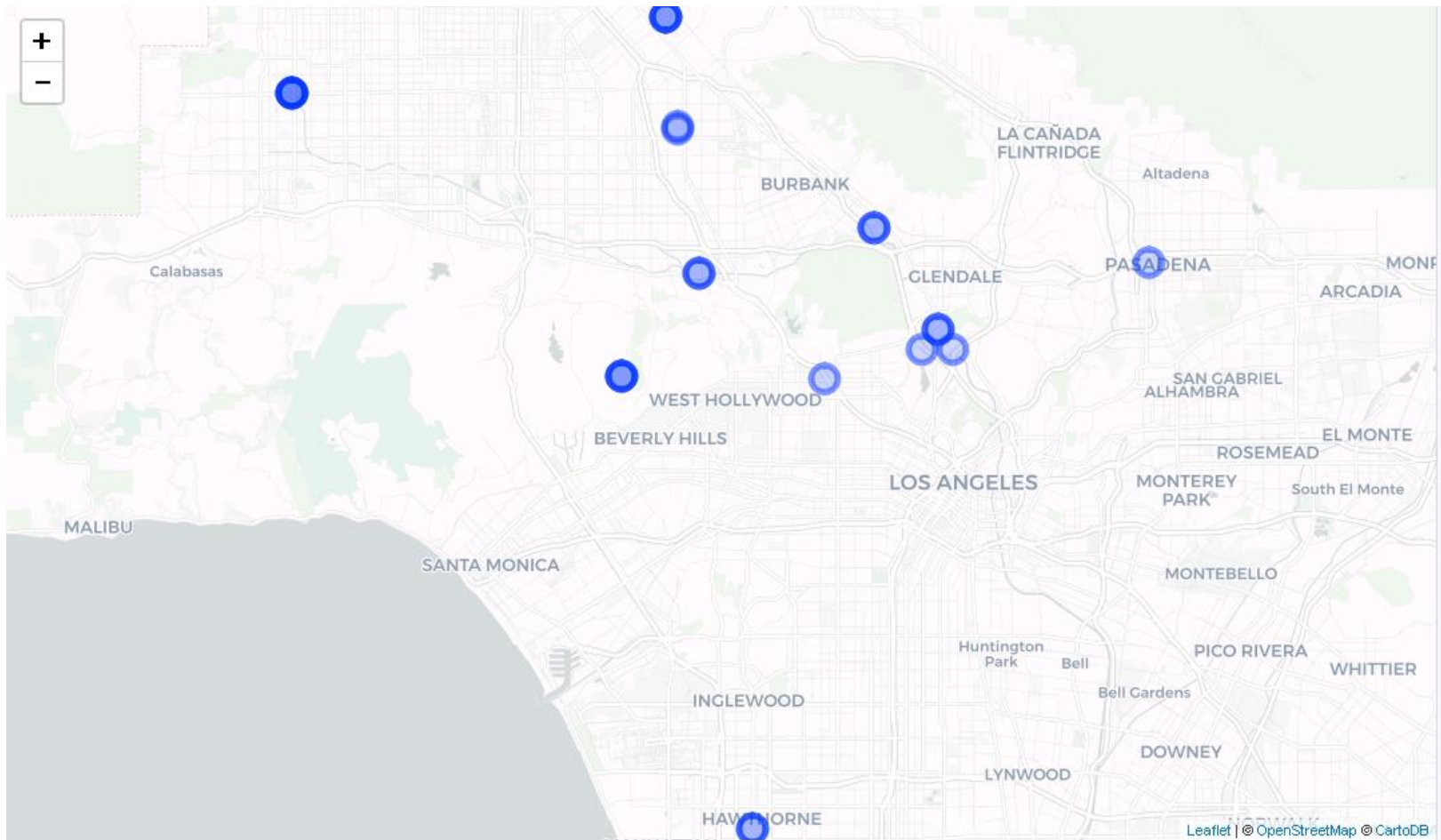
More functions, visualizations, and interactivity

- Embedding a photo within datatable

```
nodes.df %>%
    mutate(image = paste0('<img src=\"', image, '" height="100"></img>'))
```
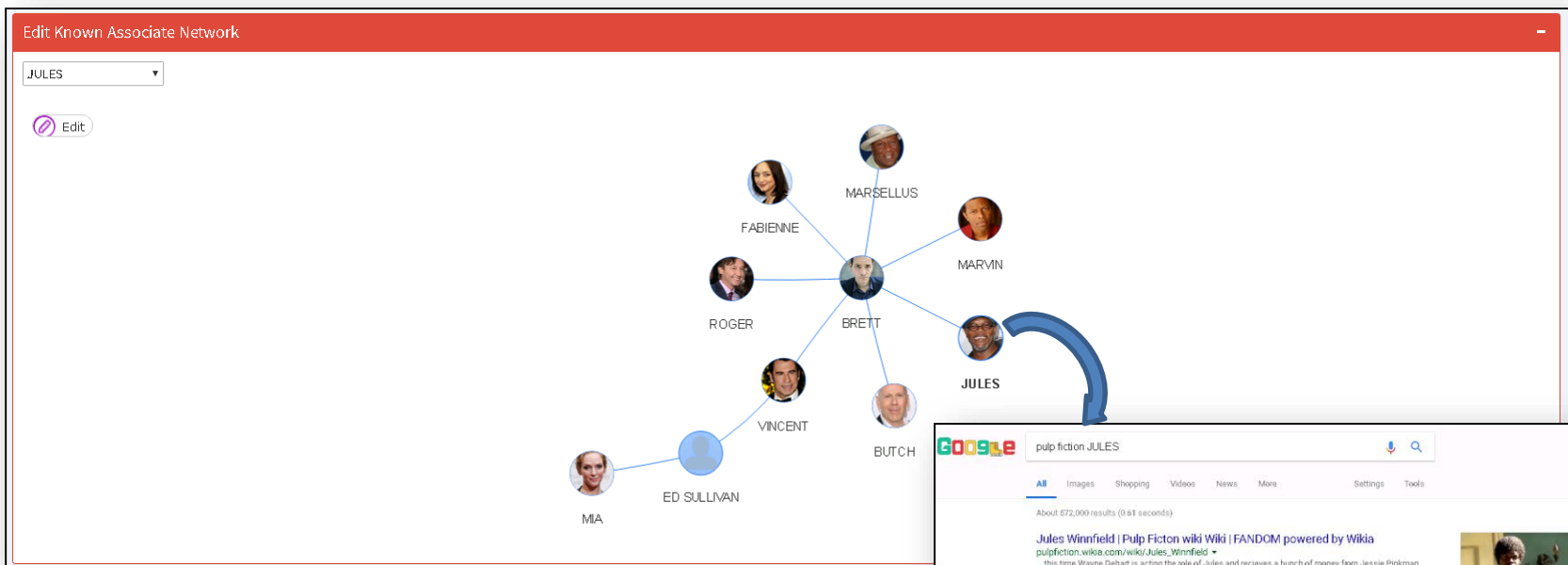
More functions, visualizations, and interactivity
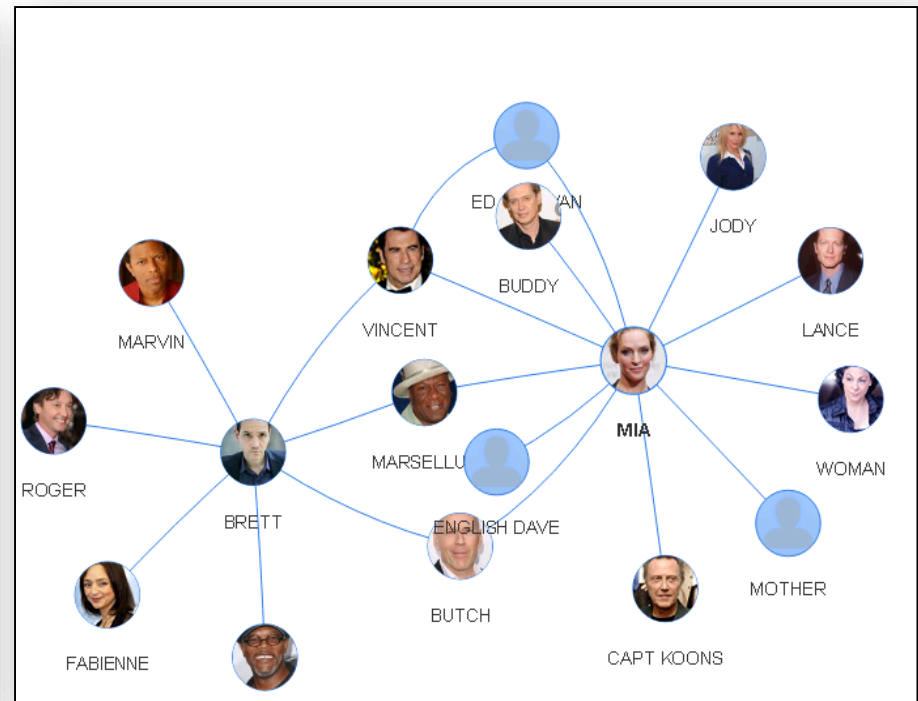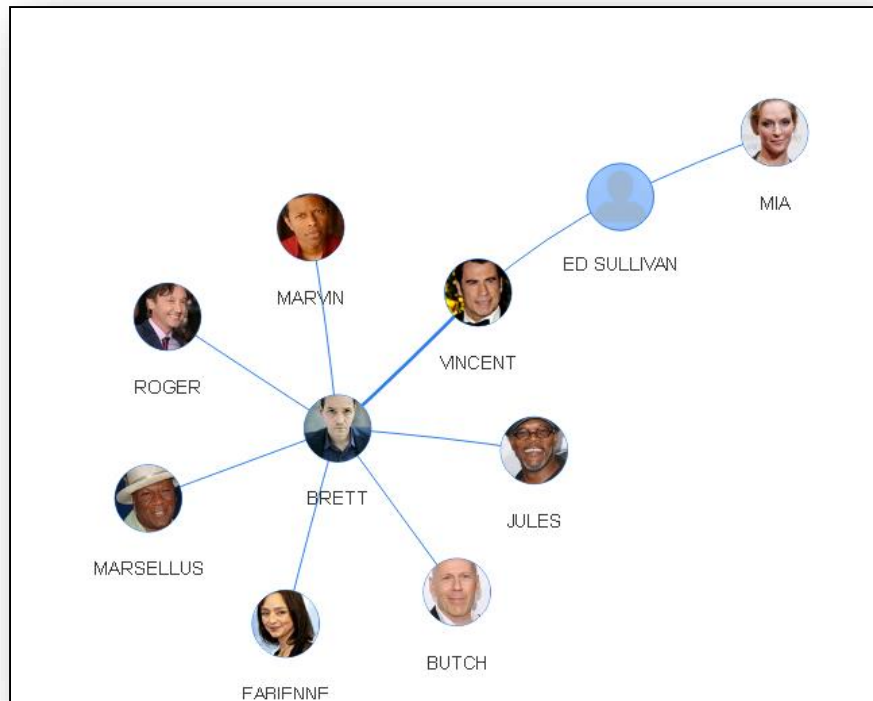
- Hyperlinking visNetwork nodes (double-click)


```
visEvents(doubleClick = "function(properties) {
window.open('https://www.google.com/search?q=p
ulp+fiction+' +
this.body.data.nodes.get(properties.nodes[0]).id);}",
```
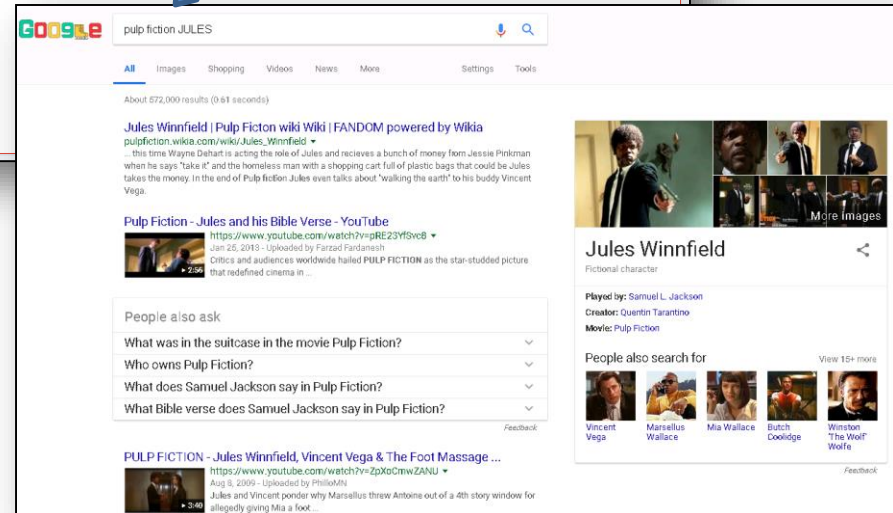
More functions, visualizations, and interactivity

- Expanding a network through a click

- # selecting network elements
  ```
  observe({
          input$current_node_id
          visNetworkProxy("network") %>%
                  visGetSelectedNodes()
  })
  ```

- # react to a network element selection (e.g., left click a node)
  ```
  observeEvent(input$network_selected, {

          # insert additional data script here

          visNetworkProxy("network") %>%
                  visUpdateNodes(nodes = nodes2) %>%
                  visUpdateEdges(edges = edges2)
  })
  ```

More functions, visualizations, and interactivity

- Linking visNetwork and data.table

subset(table.df, id %in% input$network_selectedEdges)