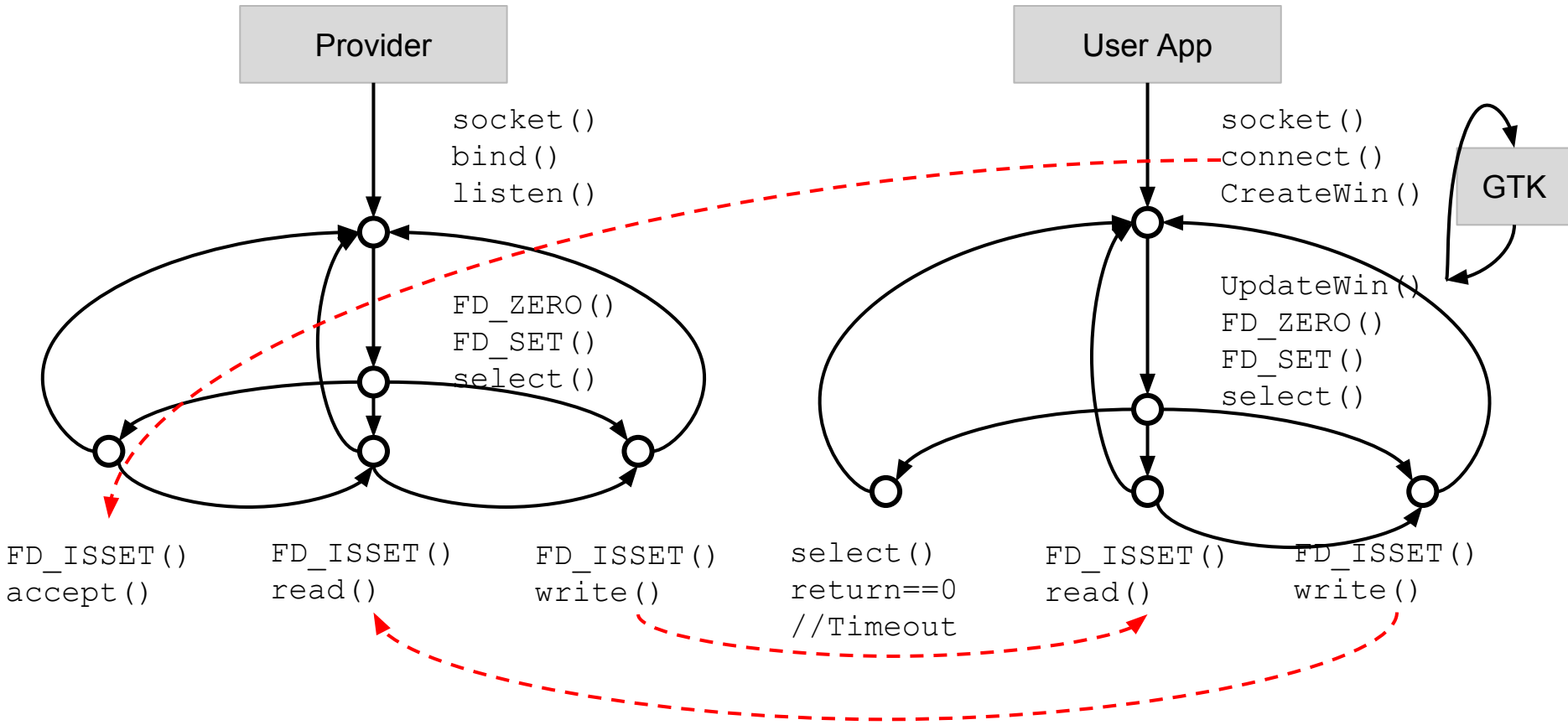


Provider

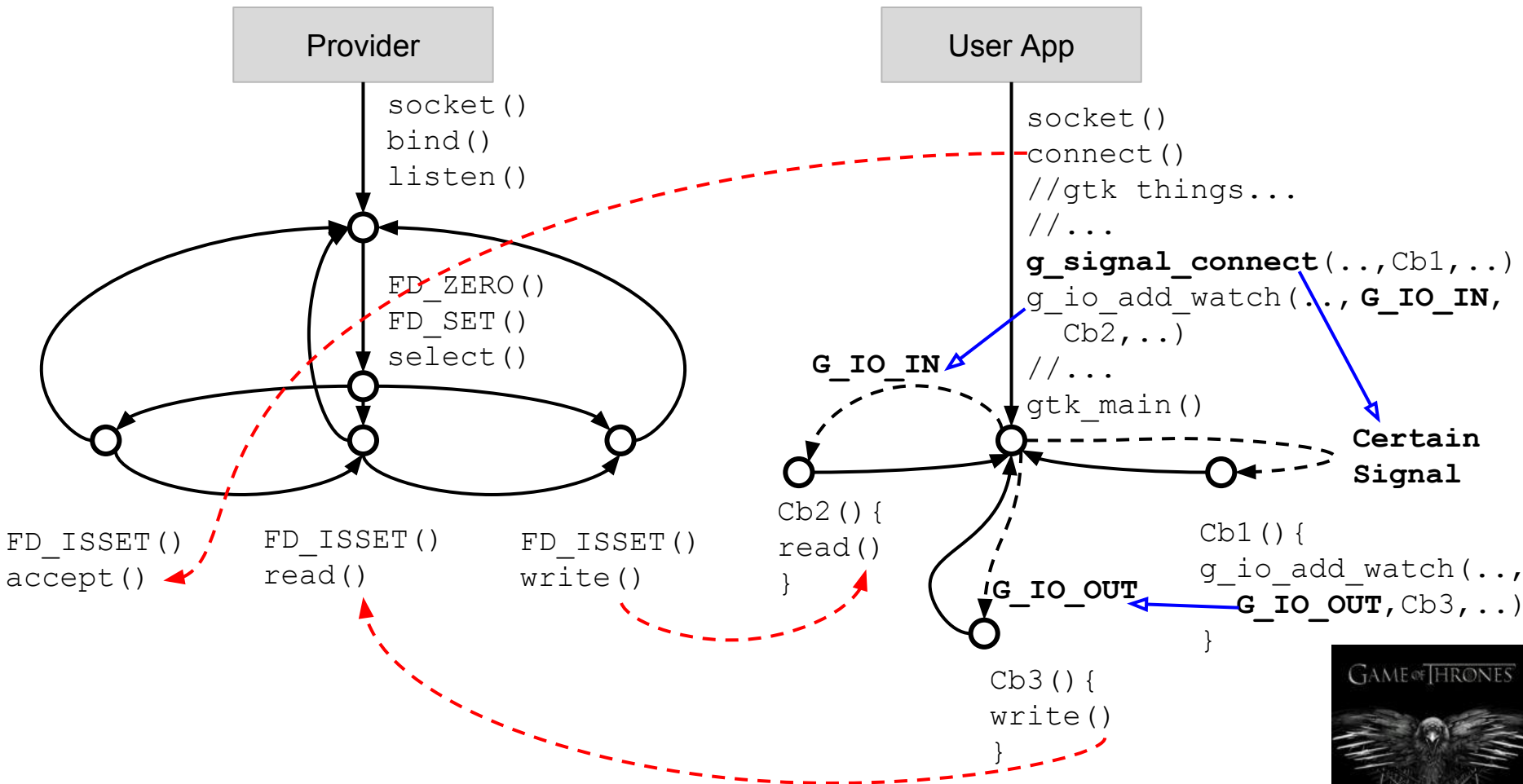
- **socket()** //Create the socket (also a file descriptor number)
- **bind()** //bind a name to a socket
- **listen()** //willingness to accept incoming connections and a queue limit for incoming connections are specified
- **while(!Shutdown)**
 - **FD_ZERO()** //Initialize the read, write and exception file descriptor set to be the empty set.
 - **FD_SET()** //Include file descriptors into a fd set corresponded to the active sockets.
 - **select()** //Check for activity on the file descriptor sets: read set, write set or exception set.
 - **FD_ISSET()** //Check if the file descriptor is included in the to-check fd sets.
 - **accept()** //Listened socket is ready to be read -> Accept a new user app connection.
 - **recv()** //Some sockets are ready to be read -> User apps send messages.
 - **write()** //Some sockets are ready to be write. -> Server should forward the message the destination client.
 - **Exception** //Some fd.s have errors during recv/write or are selected in exception fd set -> gracefully close the socket.

User app

- **socket()** //Create the socket
- **connect()** //Try to connect to the provider
- **CreateWindow()** //Create GTK window
- **while(!Shutdown)**
 - **UpdateWindow()** //Return control to GTK and update the GTK window
 - **FD_ZERO()** //Initialize the read, write and exception file descriptors to the null set.
 - **FD_SET()** // Include server's socket to the read, write and exception set
 - **select()** // Check for activity on the file descriptor sets (read, write or exception) or the **timeout!**
 - **Timeout** // Take action (probably nothing!) and go to the start of the loop to update GUI.
 - **FD_ISSET()** //Check if the file descriptor is included in the to-check fd sets.
 - **recv()** // Provider sent something that the user app should get.
 - **write()** // User app have something to send to the server
 - **Exception** //Some fd.s have errors during recv/write or are selected in exception fd set -> gracefully close the socket.



When there is error in any function, `close()` the socket and may `FD_CLR()` for it or don't `FD_SET()` for it in the beginning of the loop.



For callback function in `g_io_add_watch`, return `False` to end the watch or `True` to keep watching