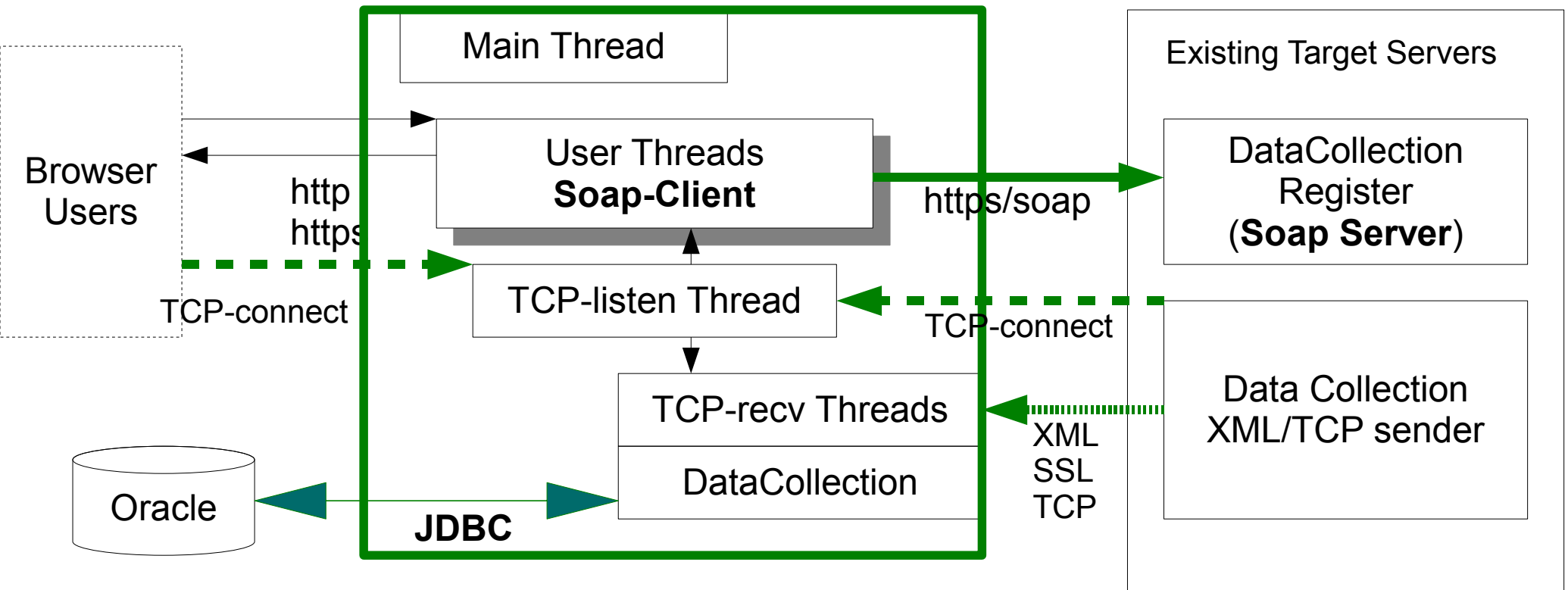


Building Web Services (SOAP) System

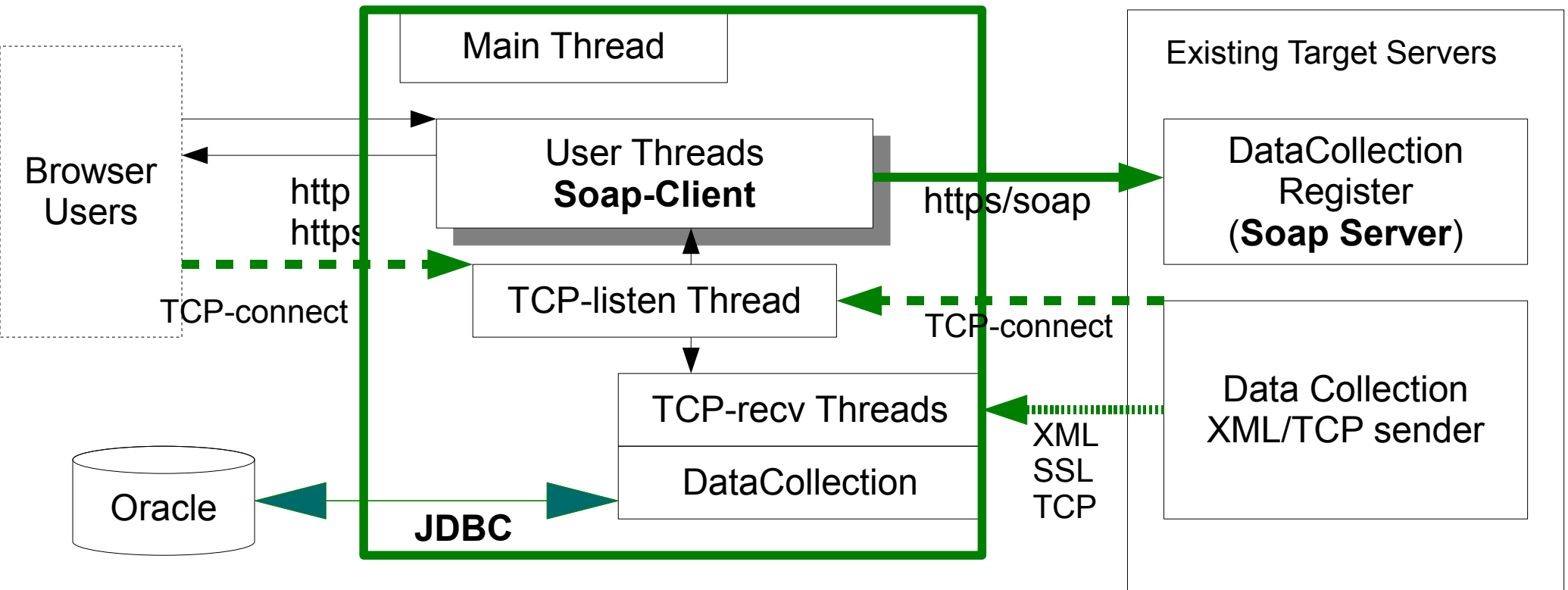
- **SOAP** – Simple Object Access Protocol
- Apache Tomcat 5
- Apache Axis with xmlBean
- Apache Axis2 with xmlBean or OMElement
- Apache Common Logging
- Apache Log4J 1.2.9 (for log and trace)
- Java JDK/JRE 1.5

Building Soap Client to Existing Soap Servers



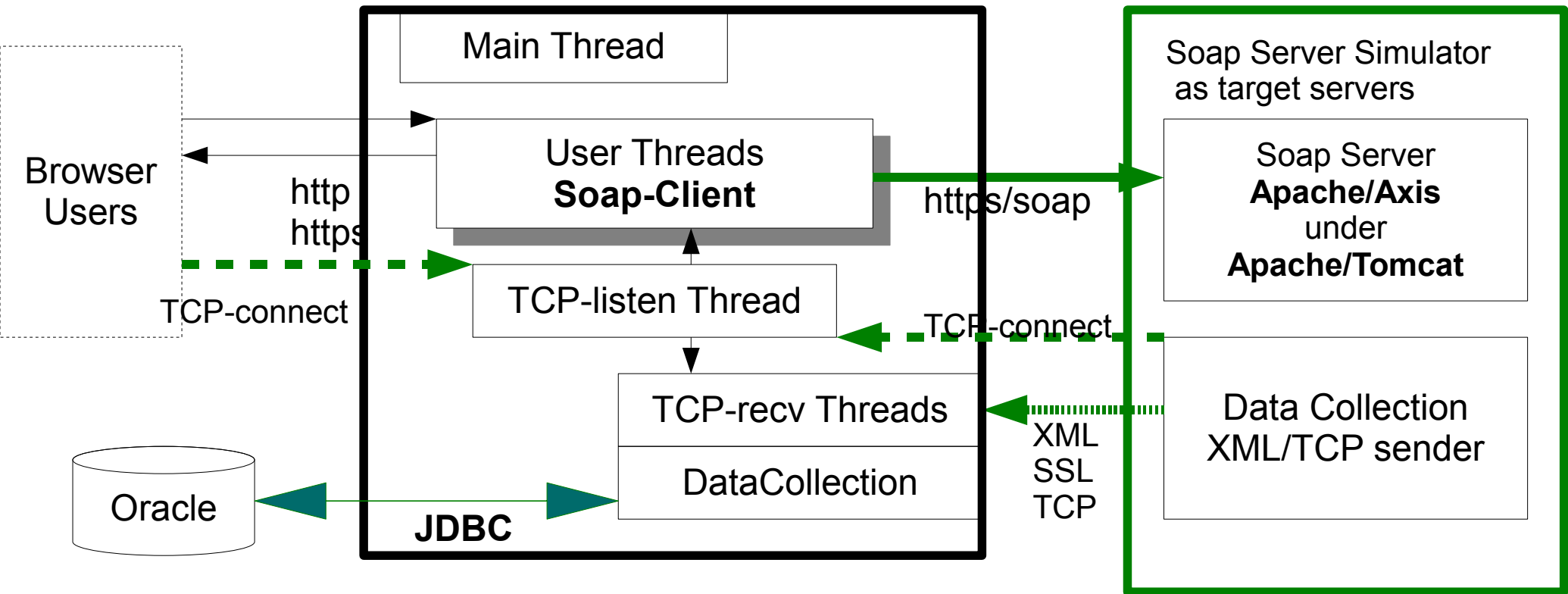
- Build a multi-threaded Java Soap Client to access 100+ target Soap Servers
- Client accepts users initiated Soap requests from Browser to Server for Data Collection control
- Client stub generated by **Apache/Axis** WSDL2Java using **WSDL** file provided by Soap Server
- Client receives spontaneous report XML messages over TCP Secure Socket (SSL)
- Client decodes XML messages using **Apache/xmlBean** generated code from XML Schema
- Client traverses XML message data using XML XPATH/XUERY

Building Soap Client to Existing Soap Servers



- Collected data is stored into Oracle via JDBC protocol with Connection Pooling and Fail/Retry
- Data is stored in Oracle as Oracle data type XMLType
- User & TCP-recv Threads are instantiated by TCP-listen Thread upon TCP-connect requests

Building Soap Server Simulator for Unit Test



- Build a Java based Soap Server Simulator for development unit test
- Build a Java based Data Collection Simulator for development unit test
- Soap Server skeleton code is generated by **Apache/Axis** WSDL2Java using wsdl file
- Install Axis into Apache/Tomcat as an Web-INF WAR file
- Install Soap Server classes into Tomcat/Axis using Axis AdminClient utility.

Evaluation of Apache Axis2

- Install Apache/Axis2 into Apache/Tomcat
- Using WSDL file to generate Soap client & server code
- Compare performance difference for using Apache/XMLbean versus Axis2/OMElement