

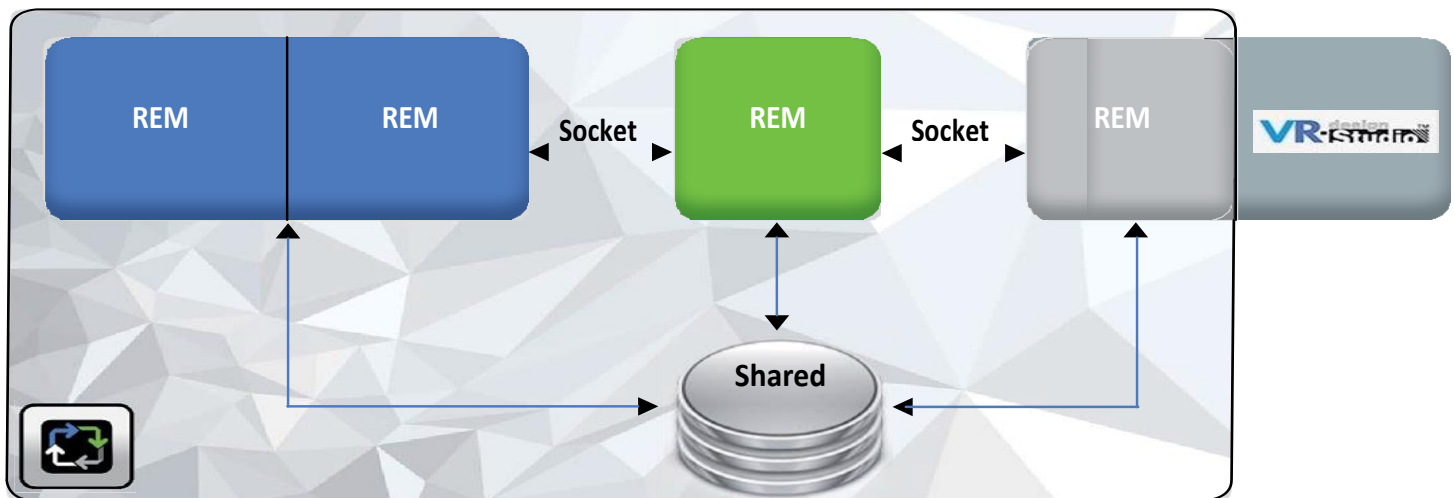
# Remote Editor Manager (REM)

## OVERVIEW

REM enables a user to create, compile and execute scenarios in graphical format. It has its own execution engine that interacts with VR-Design Studio through a dedicated plug-in. Its own graphical user interface (GUI) can design the scenarios following the workflow logic. REM is able to generate several rules at the same time from different clients.

## RUNNING

- VR-Design Studio query to launch a scenario: transmits to REM a demand to determine the existence of a scenario through an identifier. If it exists in the REM library of scenarios, then the corresponding scenario is launched.
- This query may be voluntary (click the tab in the menu) or automatic (carried out by an external plug-in).
- Querying the status of an equation by REM to VR-Design Studio: this query forwards the demand (request) for the value of the equation (transition or decision)
- VR-Design Studio responds to REM on the status of an equation
- Request to execute an action in VR-Design Studio by REM



Data exchanges are conducted through socket memory areas allowing the REM engine PC and the VR-Design Studio PC to be separated, if required.

The REM plug-in can be launched in either 'Editor-mode' or 'Engine-mode'. A specific menu in VR-Design Studio will handle either modes.

All the existing scenarios in a project will be accessible from this menu.

Up to 50 scenarios can be launched at the same time either manually or automatically (at the simulation startup for example).

In order to manage the events, REM queries VR-Design Studio on the state of the equation. Variables of equation are retrieved and replaced with their current values, which are periodically updated by the REM plug-in. The equation is then evaluated, and this evaluation decides the course to take.

Rules	Action in proce
Accident between 2 cars	Patrolman intervention
Pedestrian crossing	End
Limited speed_70	End
Fire	Firemen intervention
Traffic Jam	End
Errant animal	Pound calling
Object on the roadway	Patrolman intervention
Wrong Way	Police intervention
Limited speed_70	Start

# ARCHITECTURE

## REM Server

The REM server is the heart of the software that allows the scenario to run. It is implemented as a «Server» object with several attributes, mainly the port as well as a set of methods : REM Server analyses during running in a thread, and permanently for any TCP connections on the port, precised in the "port" attribute. Every connection is then managed during the analysis launched in the thread.

A rule is defined as a smart equation between elements and links, which are stored in the Database. To support the launch of several rules in the same time, run in a thread. REM server manages the progress of the rule through a method, running in a thread. REM server also recovers the information about the composition of the "workflow" from the shared tables.

## REM Client

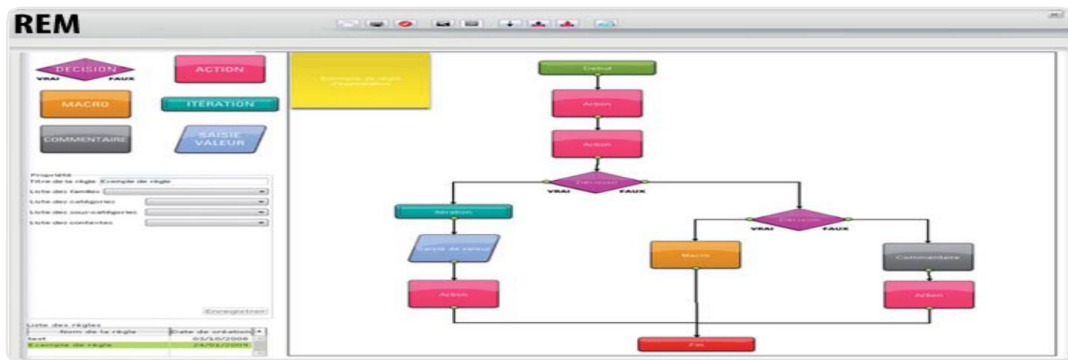
The REM client acts as a translator between the REM plug-in and the REM server. It fulfills two principal functionalities. First, it retrieves the necessary vocabulary from the database so that the REM plug-in can understand the order sent from the REM Server. Second, it evaluates the equations that allow the rule to continue. The REM client also permits the interoperability of the REM plug-in with the other modules. In addition, it uses a (server) part which waits a possible connection of a third party software.

## REM Plug-in

This module is responsible of the translation between VR Design Studio and the REM software. The REM plug-in uses a socket communication. This manages the communication « multi-client » more easily and adds the ability to exchanges messages with software hosted in distant machines.

## REM Graphic Interface

The REM graphic interface module allows the user to use a graphical rule editor to create, compile and execute scenarios in graphical form.



**Start** Beginning and end of the scenario. The first step carries the identifier that will launch the scenario either

**End** manually or automatically from the VR Interface.

**ACTION** The 'ACTION' to be taken corresponds to the event of the actual script editor. Clicking an action in edit mode opens a configuration window with identical functions as the current ones. Any 'action' will have an effect on the VR environment or one of its models.

**MACRO** Calls another scenario within the existing one.

**ITERATION** Repeat the previous step until the scenario's exit criterion (time, condition, number of iterations etc...)



A decision step, following the result of the condition (associated logic equation), the active graph will go to the left (True) or right (False). The condition is passed to the VR by the REM engine



Displays a dialog box in VR-DesignStudio, prompting the entry of a value



This is an unconditional link between two steps. The transition to the next step is systematic



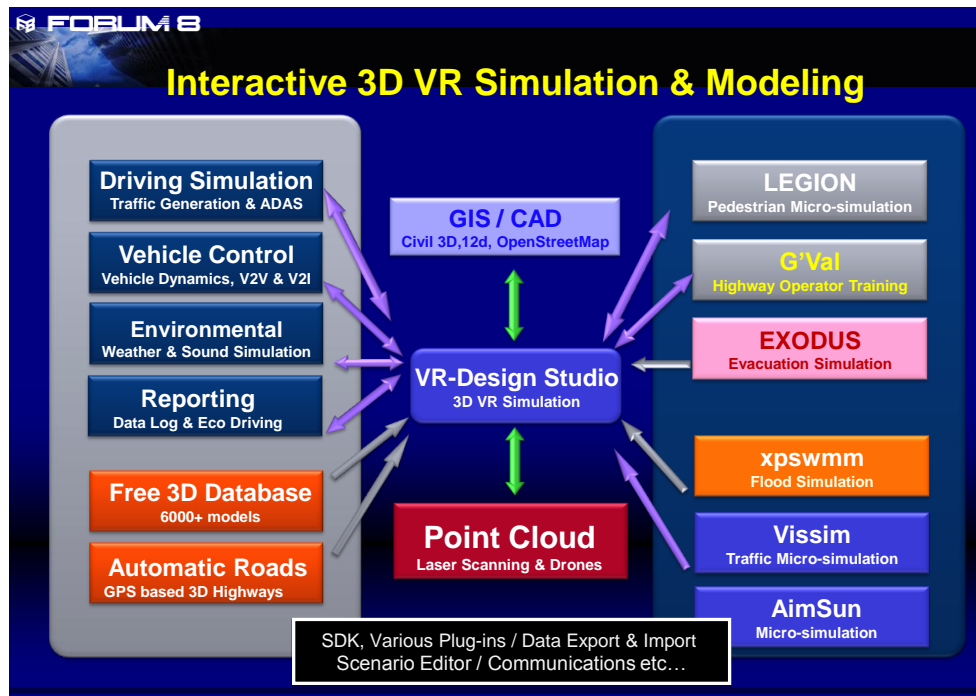
The conditional link between two steps. The condition (logic equation) must be satisfied to go to the next step



A temporary link between two steps. A waiting time must have elapsed to move to the next step

## FORUM8 VR-Design Studio Product Overview & Applications

VR-Design Studio is the ideal solution for many different interactive simulation applications, including urban / transport planning & design, consensus building via stakeholder consultation and drive simulation. It is used either on its own or to add value to other industry standard third-party 3D design & analysis, micro-simulation & modeling software, as well as civil engineering, flood modeling and point cloud data.



## FORUM8 the Company

Established in 1987 the company's HQ is in Tokyo, with five other development and support facilities in Japan as well as a Super Computer Cloud Research Laboratory in Kobe. Overseas office in: China, Taiwan, Vietnam, Korea, Canada & London (UK) with remote facilities in USA & France. Forum8 also benefits from a network of distribution and technical partners worldwide.

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