



Tango Alarms


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- ⑥ Easily configurable
- ⑥ Support for complex rules
- ⑥ Logical and binary operators
- ⑥ Basic mathematical functions
- ⑥ Runtime extensible
- ⑥ May carry some additional info
- ⑥ Example alarm formulas:
 - △ $((\{\text{sr/pscid/s1.1/stat}\} \& 0x100) \&\& (\{\text{sr/carid/s1.1/stat}\} \& 0x40))$
 - △ $((\text{fabs}(\{\text{sr/psch/s1.1/curr}\}) > 10.0) \&\& (\{\text{sr/psch/s1.1/stat}\} \& 0x10))$
 - △ $((\{\text{sr/bst/s6.1/stat}\} > 0x1) \|\ (\{\text{sr/bst/s6.2/stat}\} \& 0x1)) \&\& (\{\text{sr/carid/s6.1/stat}\} \& 0x400))$
- ⑥ Why are not device server alarms enough?

Alarm message



date	time	alarm id	status	ack	message
2004.12.16	17:30:37	sr/pscid/s1.1/off	ALARM	NOT_ACK	<i>PS off</i>
2004.12.16	17:34:21	sr/pscid/s1.2/off	ALARM	ACK	—
2004.12.16	18:15:34	sr/pscid/s1.3/off	NORMAL	ACK	—

⑥ Complete alarm message in a string

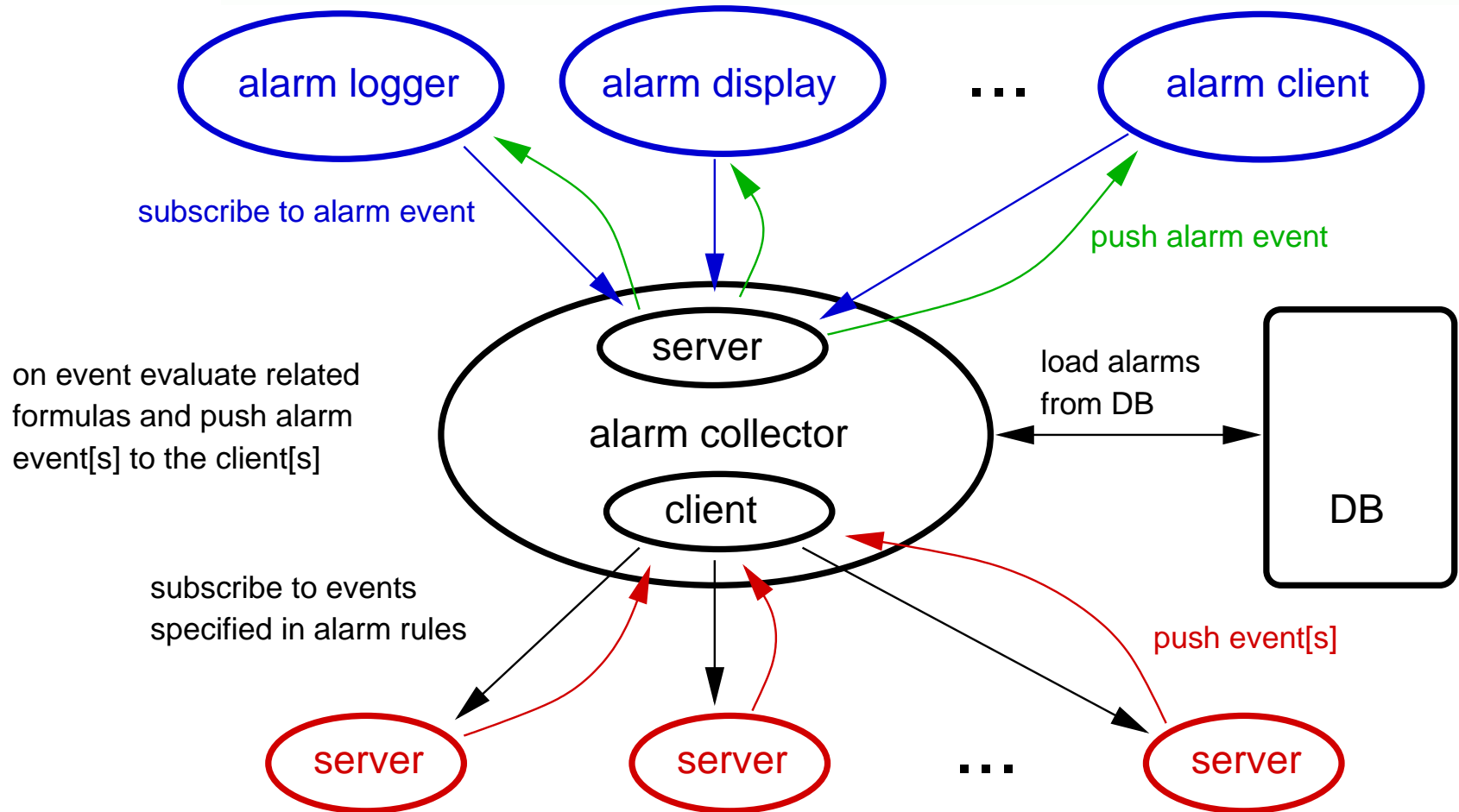
⑥ Default info:

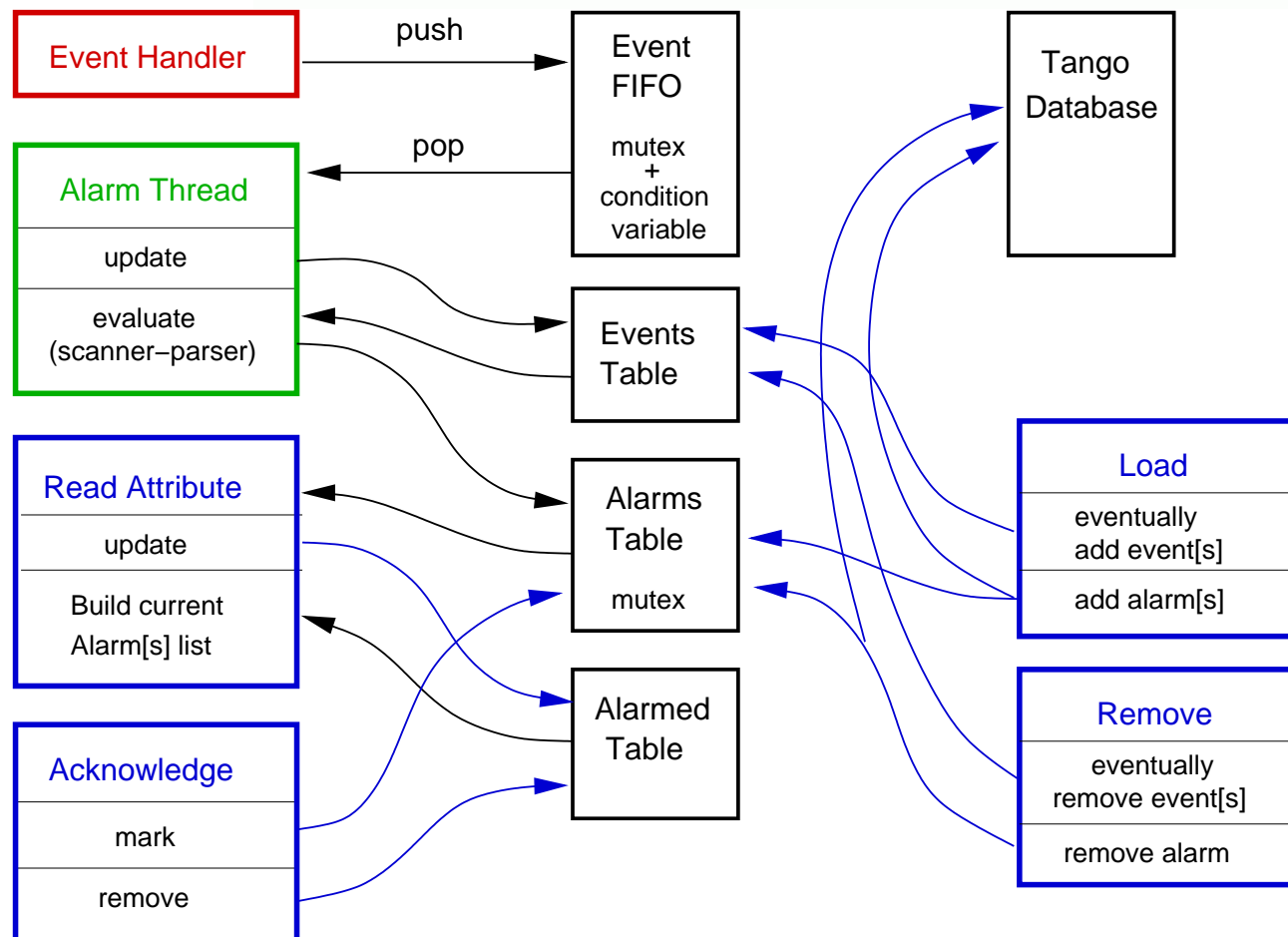
- △ ALARM time stamp
- △ ACK time stamp
- △ NORMAL time stamp
- △ Currently you will get one event for each status change

⑥ Alarm collector


- ⑥ *alarm collector*: Tango device server with:
 - △ one attribute *Alarm*
 - △ three commands *Ack, Load, Remove*
- ⑥ Each alarm stored into one *Alarm* attribute property as string
 - △ The attribute property name specified at alarm rule creation
- ⑥ ONE place to store all the alarms rules => DB
- ⑥ Consistency => ONE place to store the *alarm[s]* status
 - △ => the *alarm collector* device server
 - △ Keeping info on *alarm collector* restart
- ⑥ Loading new alarm rules:
 - △ utility DB client program => "off-line"
 - △ *alarm collector* server => "on-line"

The Alarm collector





Example alarm client output



0	tv_sec	tv_usec	Alarm	Status	Ack	Msg
1	1117015988	251755	sr/pscid/s1.1/off	ALARM	NOT_ACK	—
2	1117016007	86687	sr/pscid/s1.2/off	ALARM	ACK	—
3	1117016033	779229	sr/pscid/s1.3/off	NORMAL	NOT_ACK	—

- ⑥ *flex & bison*
 - △ C code => C++ Class container
- ⑥ SPECTRUM (IMAGE?) attribute handling
- ⑥ Server graceful termination
- ⑥ Property attribute length: VARCHAR(255)
 - △ Use TEXT column instead of VARCHAR(255) in relevant table
 - △ ALTER relevant table. Data are NOT loss for "compatible" data types
 - △ (MySQL \geq 5.0.3 will allow VARCHAR(65535) but...)
 - △ Modified Database::db_put_device_attribute_property method to overcome buffer static allocation issue
 - △ It works.
- ⑥ Error management