Connecting Enterprise Applications to Metric Driven Verification

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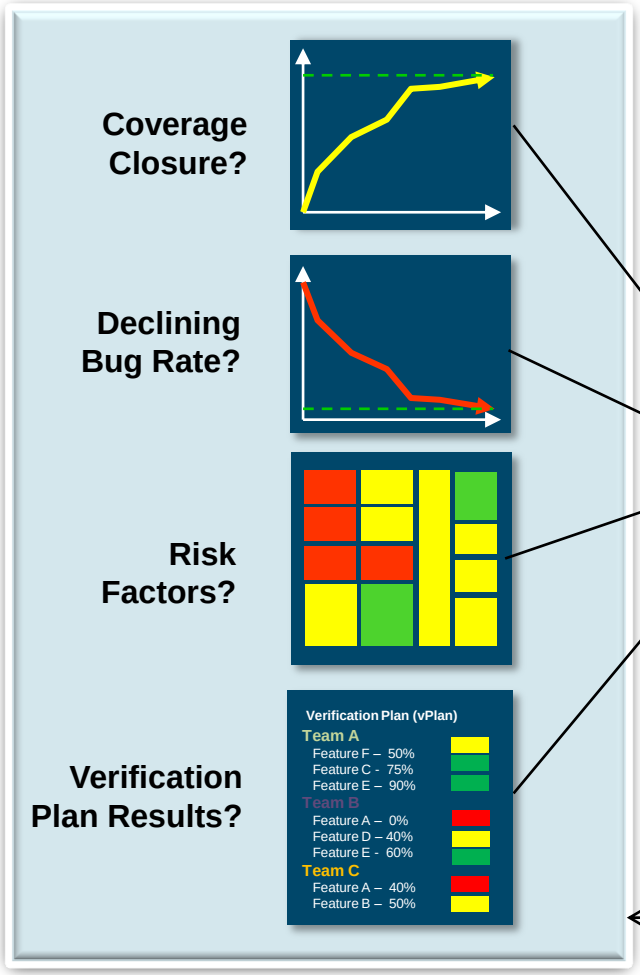
Introduction

- With the advent of UVM, Metric Driven Verification is now a codified process for verification of IP designs
- There are still several challenges at this level, not the least of which is a standardized way of integrating information that has traditionally been outside of the verification domain
- This paper describes a natural extension of MDV to traditionally disconnected enterprise applications
- Specifically - as example, a very common bug tracking example will be used as a proof of concept

Openness Enables Key Decisions



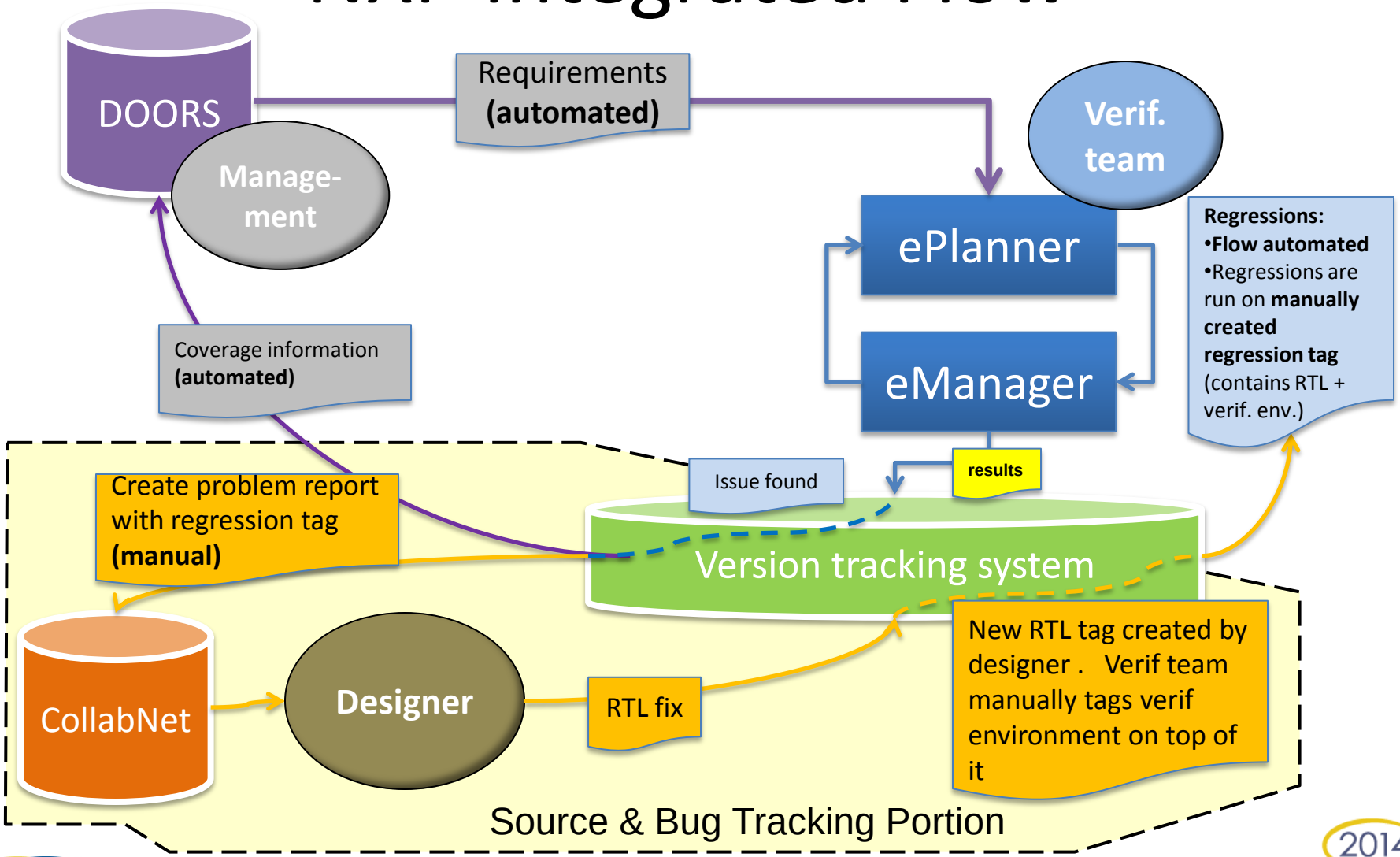
The Key is Coordinated Information!

Are all factors agreeing?

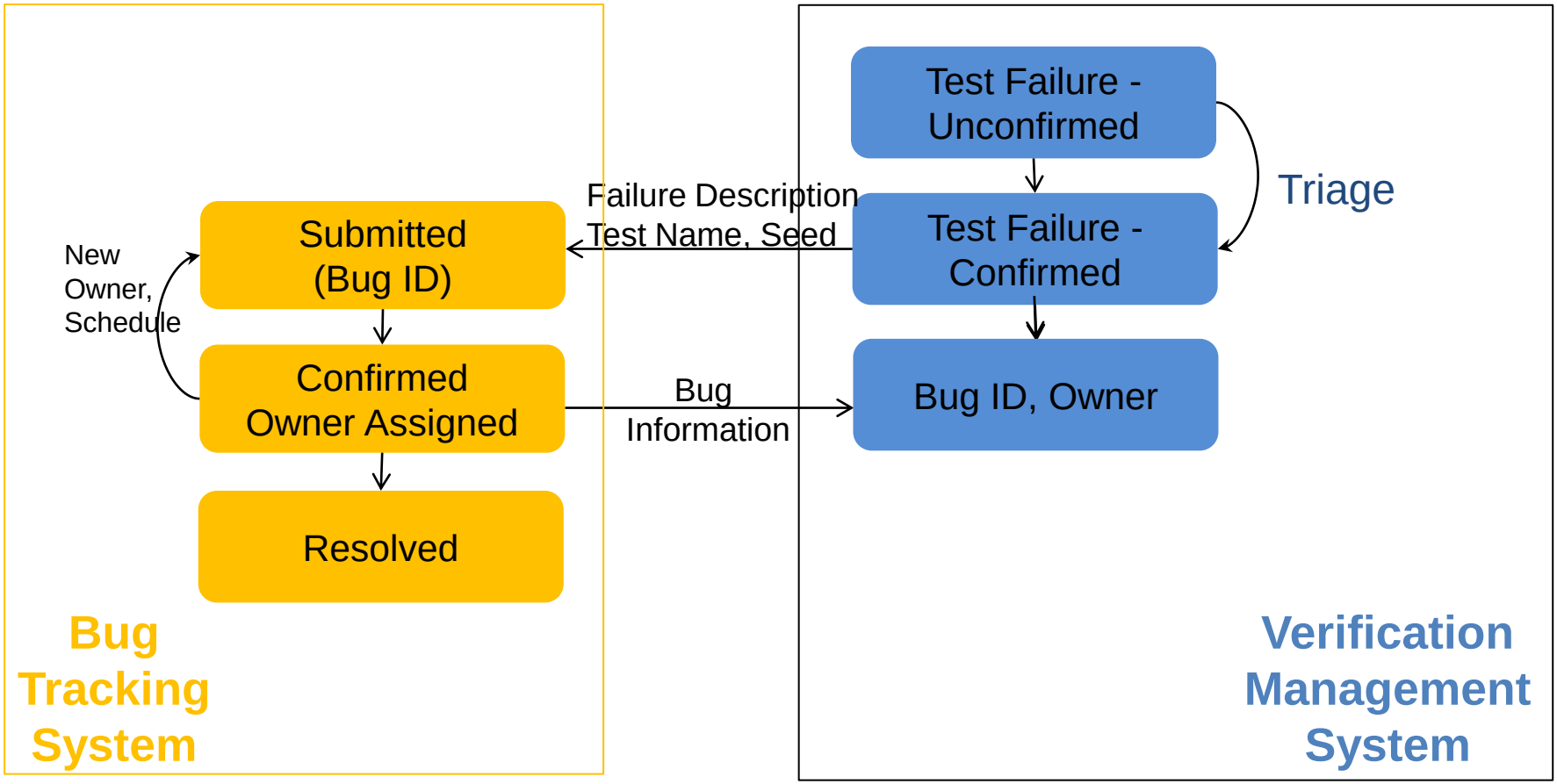
Yes → Tape Out

No → **Keep working…**

NXP Integrated Flow

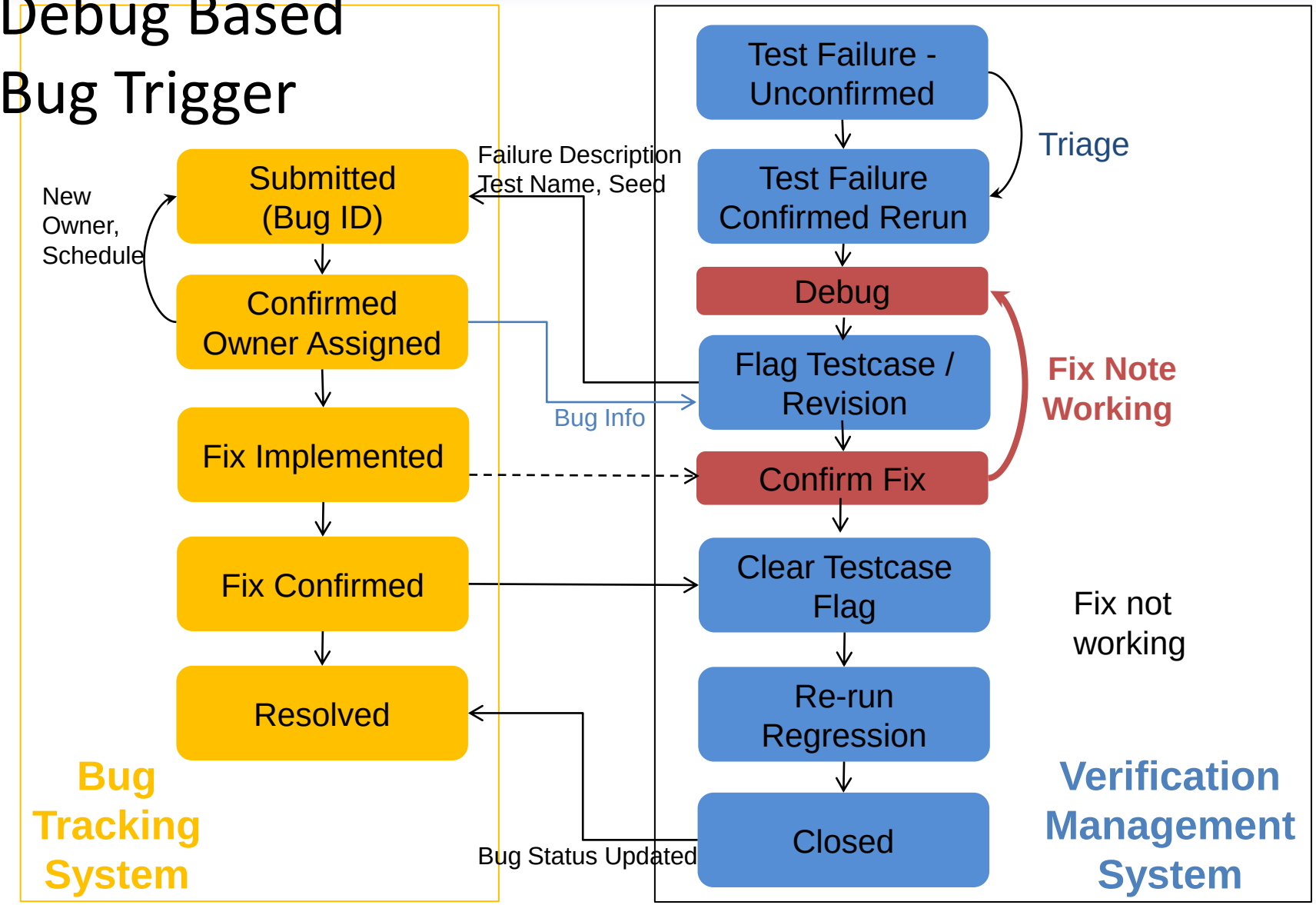


Triage Based Bug Trigger



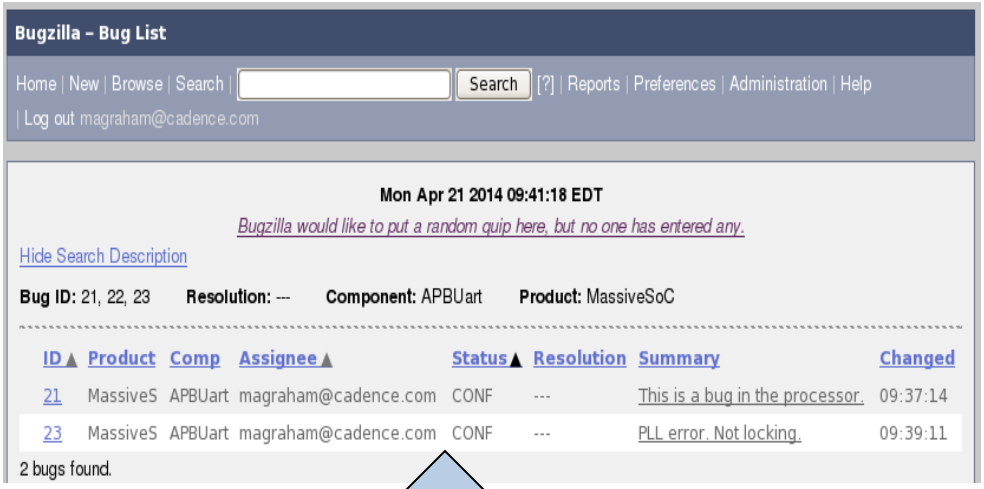
Simple Bug Tracking Synchronization Flow
Triage Process Will Trigger Bug ID being assigned

Debug Based Bug Trigger

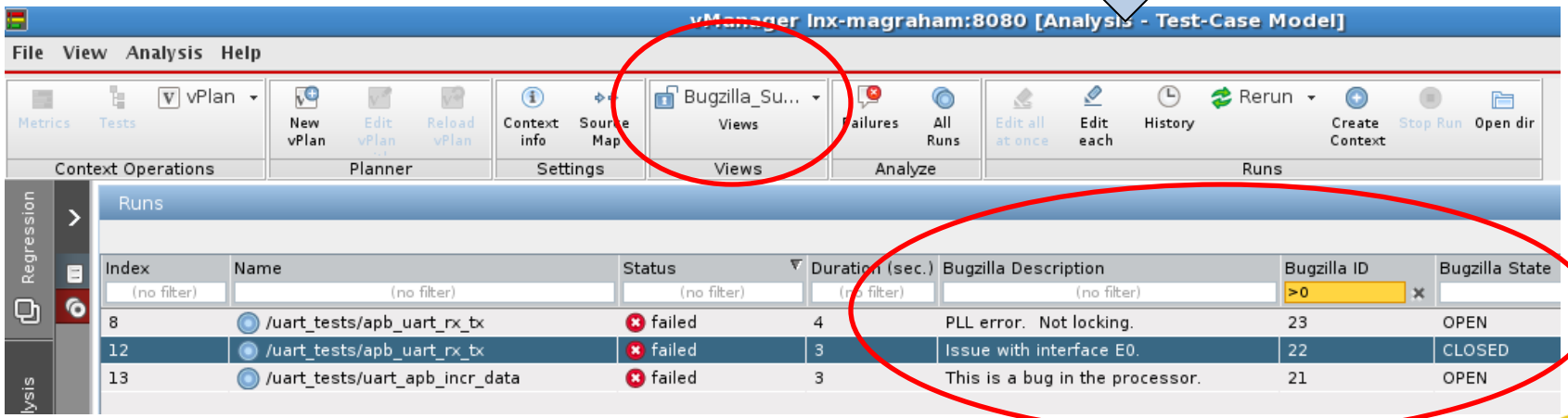


Integrating Bug Tracking to vManager

- After failures confirmed within vManager, user click user Bugzilla user defined button to create a bug ID
- Bug ID, description, status - all synchronized with vManager using REST API



REST Interface



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Integration Code – Python / TCL

Bugzilla Python Code for REST

```
bz = bugzilla.Bugzilla("http://localhost/bugzilla/","magraham@cadence.com","webmaster")

if args.bug_action == 'create' :
        newbug = bug.Bug(bz,{"product":args.product,"component":args.component,"summary":args.desc,"
version":args.version,"op_sys":args.op_sys,"platform":args.platform})
        id = newbug.create()
        print id
        if args.comment != "" :
                newbug.add_comment(args.comment)
```

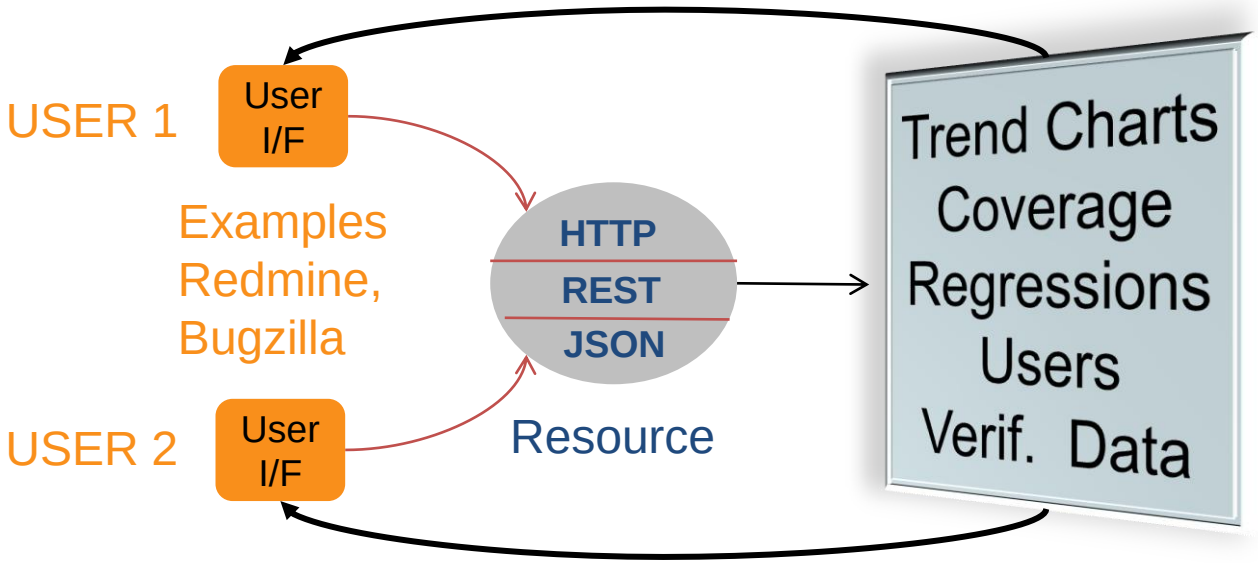
vManager TCL Code

```
if {$attr(bug_description) == ""} {
        set desc_string $attr(first_failure_description);
        set attr(bug_description) $attr(first_failure_description);
} else {
        set desc_string $attr(bug_description);
}
set comment $attr(name);
append comment " $attr(sv_seed)";
set attr(bug_id) [exec vm_bz_button create --desc "$desc_string" --comment "$comment"];
puts $attr(bug_id);
set attr(bug_state) OPEN;
```

What is REST?

The Communication Architecture of the Web

- REST - Representational State Transfer
- Defacto Industry Standard – Surpassed SOAP in 2008
- Syntax is URL style: http://example.org/news
- Methods: GET, PUT, DELETE, HEAD, POST
- Representations: HTML Hypertext Document
- Many different formats: JSON, HTML or XML



Example
vManager

Example: JSON Interchange Format

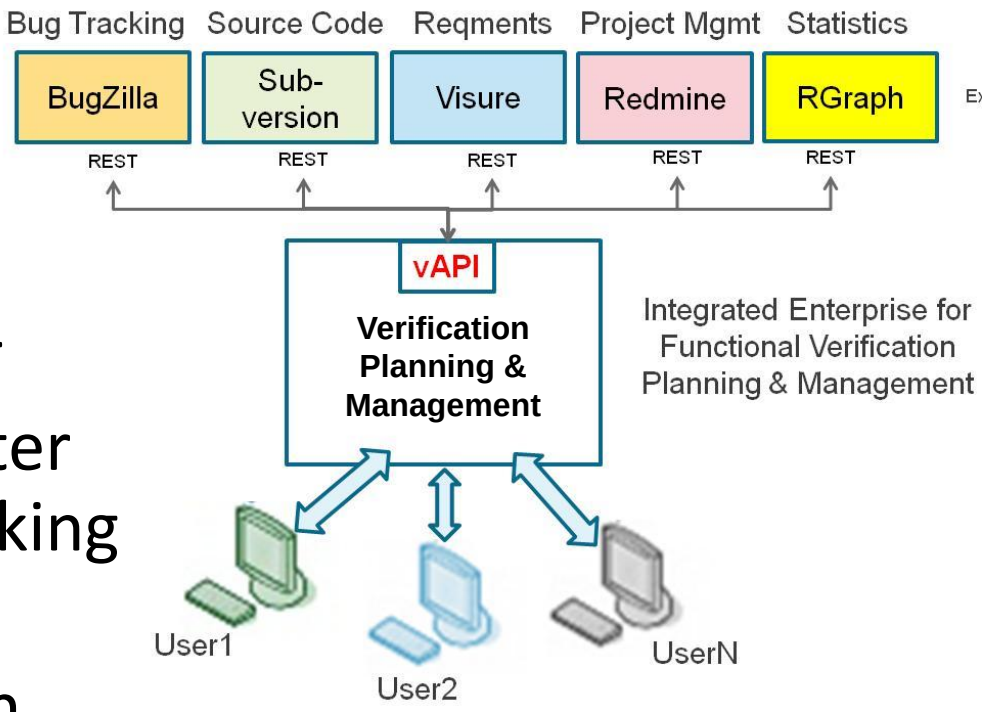
JSON (JavaScript Object Notation) is a lightweight data-interchange format. It is easy for humans to read and write. It is easy for machines to parse and generate

JSON is a text format that is completely language independent but uses conventions that are familiar to programmers of the C-family of languages, including C, C++, C#, Java, JavaScript, Perl, Python, and many others. These properties make JSON an ideal data-interchange language.

{“for-more-info” : “http://www.json.org/”}

REST for Enterprise Integrations

- REST is the defacto integration standard for 3rd party solutions
- Extending the MDV environment to be REST compatible enables better verification decision making
- Enterprise Integrations will improve information access and improve the overall verification process



Questions