

# A Platform for Monitoring Public-cloud Networks



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## Public-cloud Networks and the Need for Monitoring

### Public-cloud Networks

- ✓ An **intra-cloud** network connects virtual machines (VMs) of the same cloud provider
- ✓ **intra-datacenter** → VMs are deployed in the same datacenter
- ✓ **inter-datacenter** → VMs are deployed in different, geographically distributed datacenters

### The Need for Monitoring

- ✓ Public-cloud providers supply only **qualitative information** about the performance of their networks
- ✓ Cloud-based user applications can take advantage of **accurate information** in order to satisfy their requirements and minimize the costs

### Proposed Approach

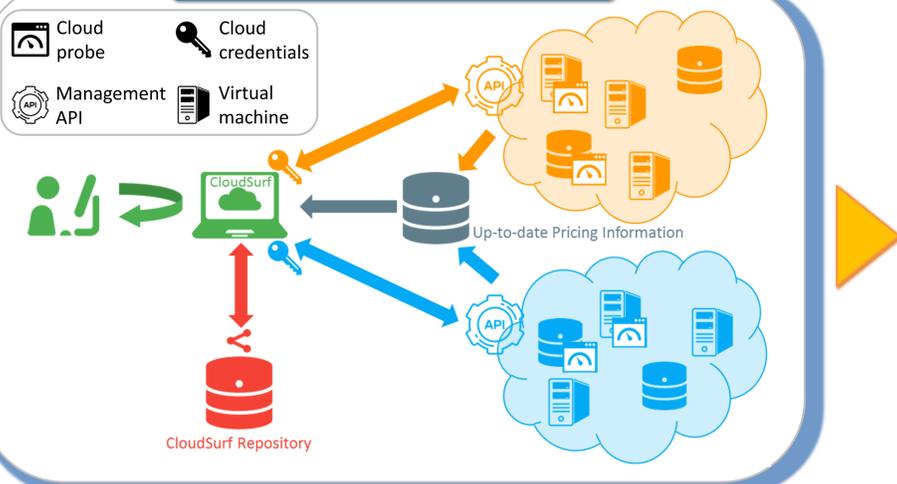
- Non-cooperative monitoring
- ✓ adopts the point of view of the general cloud customer
- ✓ does not leverage information supplied by the cloud provider
- ✓ provides accurate and trustworthy results on network performance

## The CloudSurf Suite

*CloudSurf is a platform to easily perform network monitoring tasks in public-cloud infrastructures from the general user viewpoint*

Join the CloudSurf community at <http://traffic.comics.unina.it/cloudsurf/> !

### CloudSurf Architecture

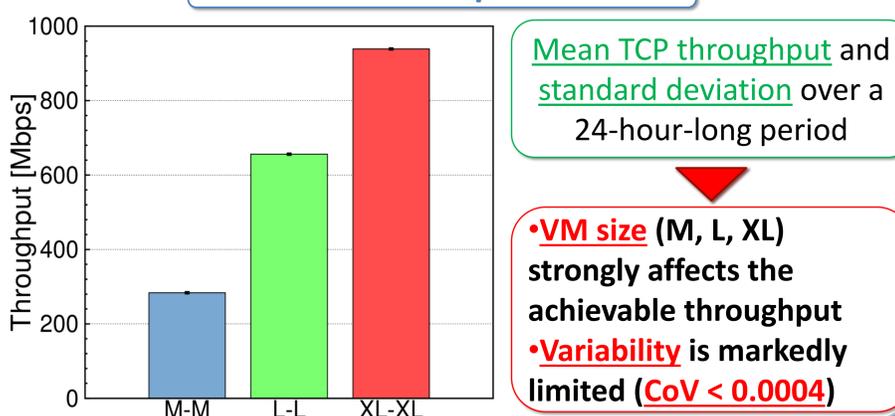


### Main Features

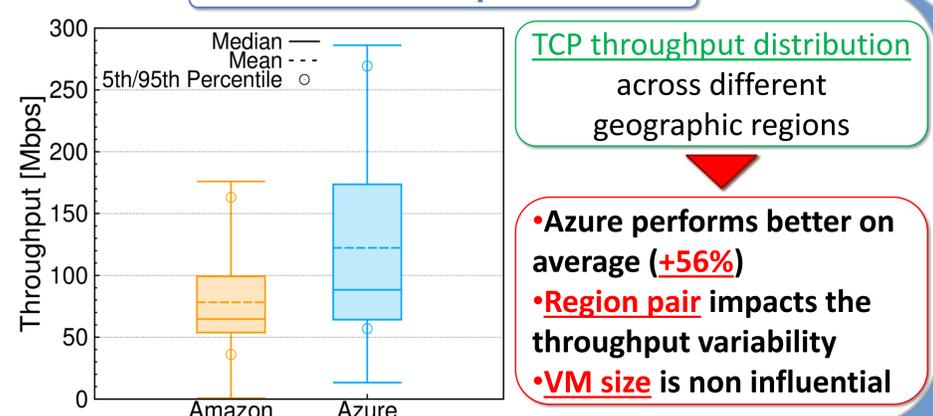
- ✓ **One-click setup:** a user just needs to configure the credentials of his public-cloud account
- ✓ **Full customization:** a user can choose between a set of preconfigured experiments or customize his own experiments
- ✓ **Cost prediction:** a user can check the estimated cost of his monitoring task before running the experiments
- ✓ **Shared results:** monitoring results are shared with the community in a standard JSON format, and can be interpreted directly by CloudSurf

## Preliminary Experimental Results

### Intra-datacenter performance



### Inter-datacenter performance



### Inter-datacenter path characterization and fees

- ✓ Asia Pacific (AP), Europe (EU), South America (SA), USA (US)
- ✓ **IP path tracing** between each region pair
- ✓ **IP-to-ASN** (Autonomous System Number) mapping

- **ASes external to Amazon** are **tier-1**
- **AP and SA** are **the worst-connected regions**
- **Different routing policies** are adopted for different VM sizes

