

Context



Cluster Objectives



Deliverables



SE4SAA @ ICT
Event 2015



White Paper



SE4SAA @
CloudForward



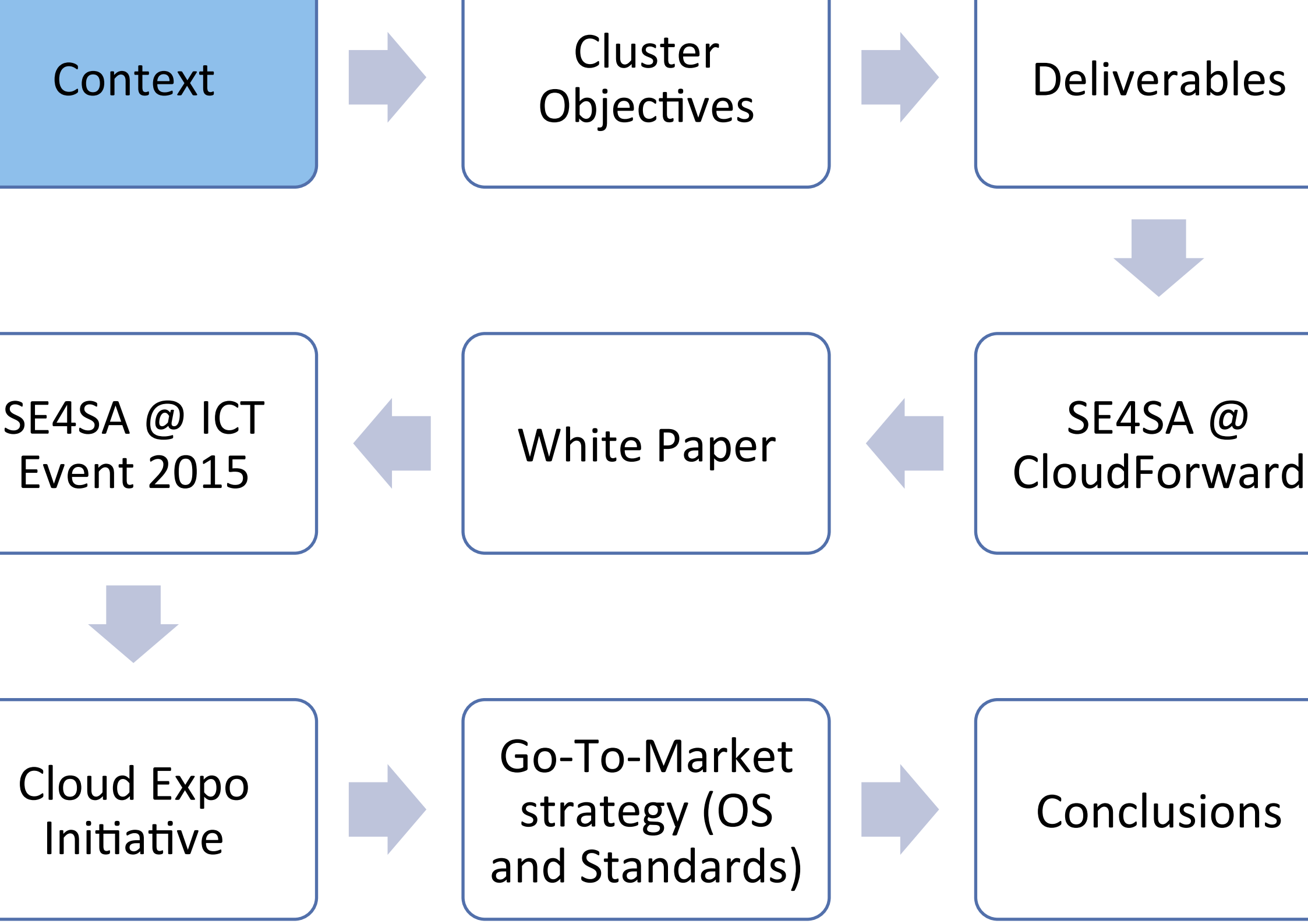
Cloud Expo
Initiative



Go-To-Market
strategy (OS
and Standards)



Conclusions



Context

Cluster Objectives

Deliverables

SE4SA @ ICT Event 2015

White Paper

SE4SA @ CloudForward

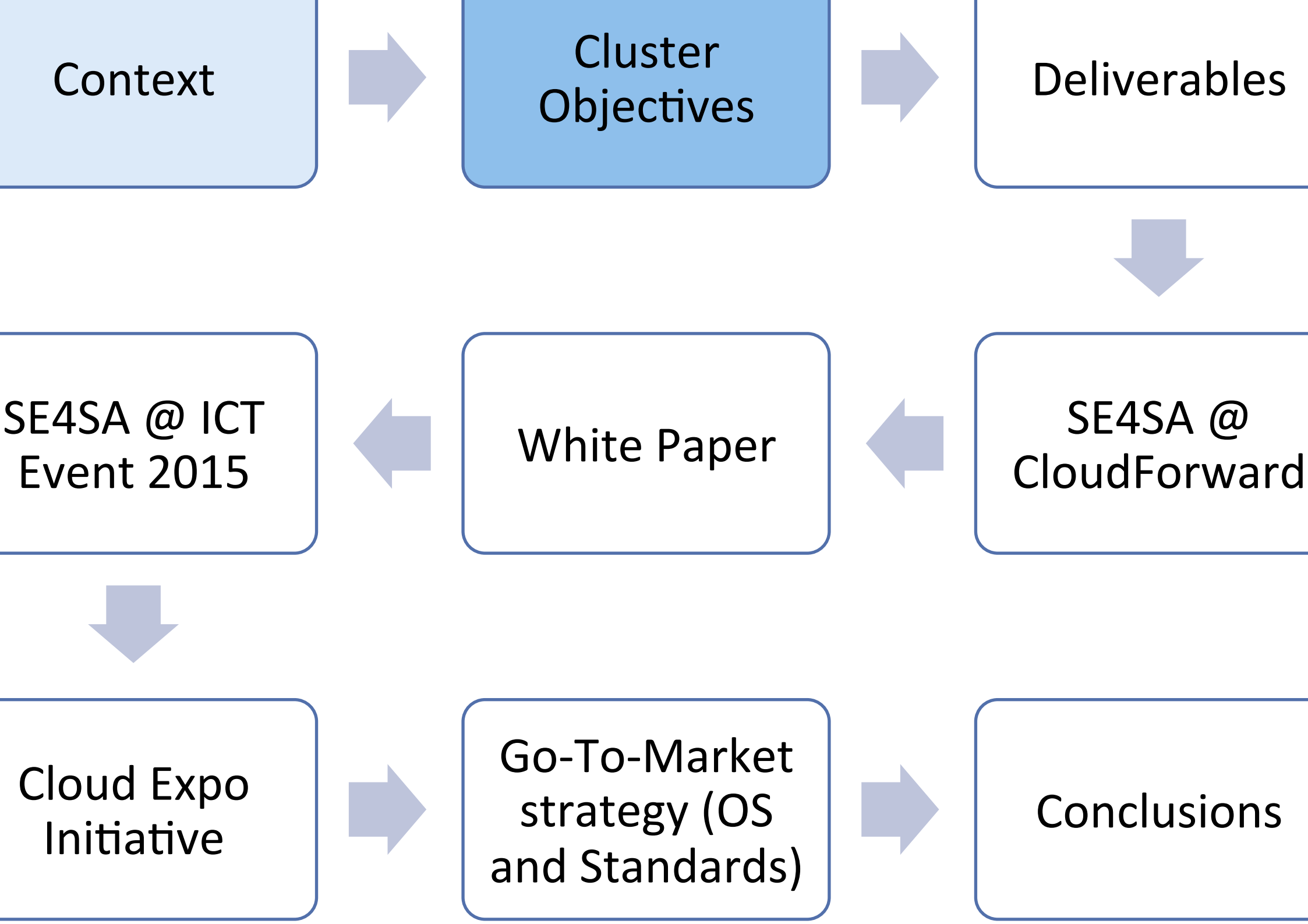
Cloud Expo Initiative

Go-To-Market strategy (OS and Standards)

Conclusions

Context

Software Engineering for:
Cloud-based applications
Services
IoT
Big data



Context

Cluster Objectives

Deliverables

SE4SA @ ICT Event 2015

White Paper

SE4SA @ CloudForward

Cloud Expo Initiative

Go-To-Market strategy (OS and Standards)

Conclusions

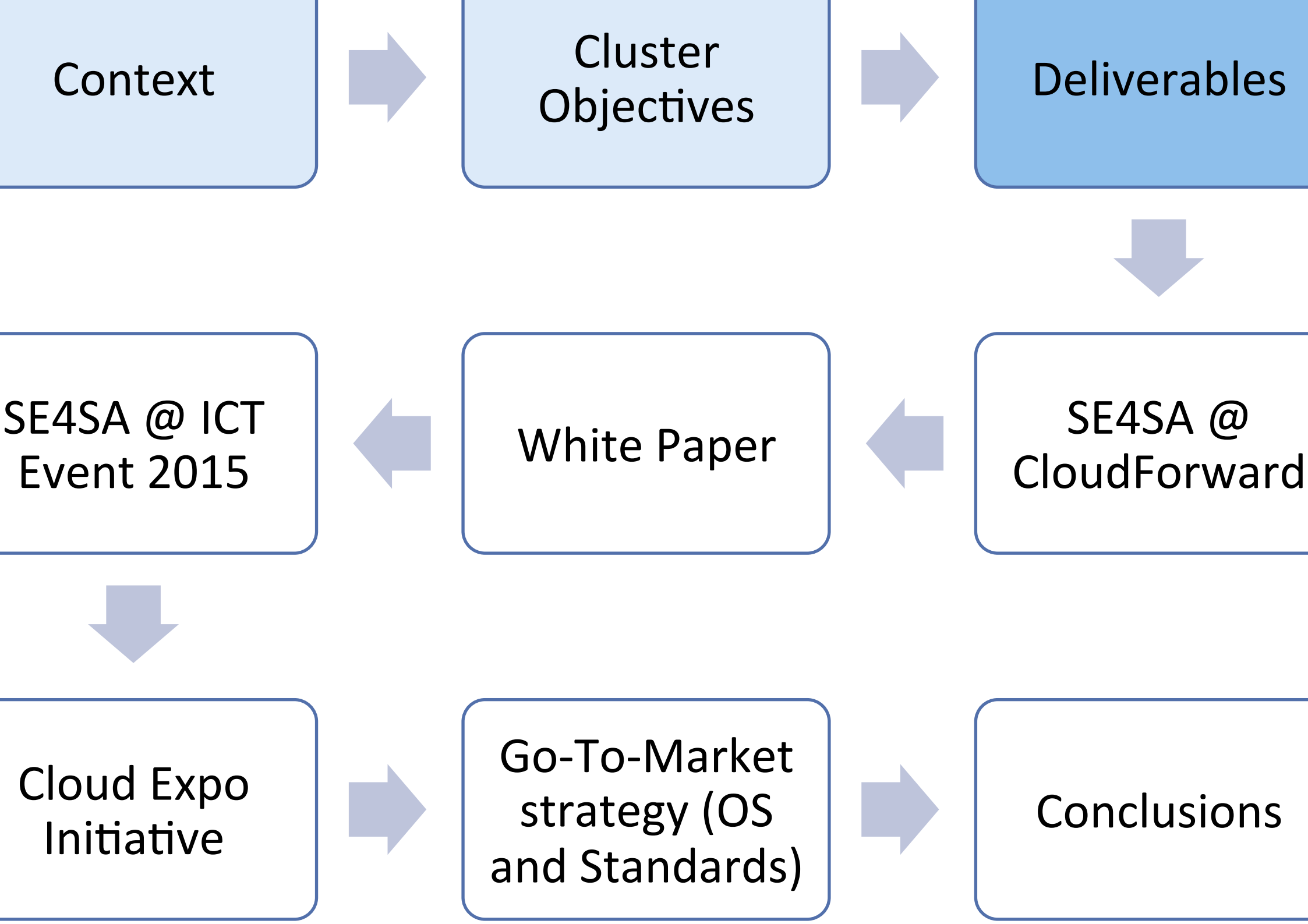
Cluster Objectives

Identify **complementarities, synergies**, possibilities for **collaboration/results adoption** between projects;

Identify **new challenges and trends** to influence the European research agenda;

Organise **common dissemination** (publications, training and workshops);

Identify **effective go-to-market strategies** for the outcomes of research projects.



Context

Cluster Objectives

Deliverables

SE4SA @ ICT Event 2015

White Paper

SE4SA @ CloudForward

Cloud Expo Initiative

Go-To-Market strategy (OS and Standards)

Conclusions

Deliverables

A **white paper** describing a map of the **challenges** in software engineering and of the initial set of **solutions** being proposed.

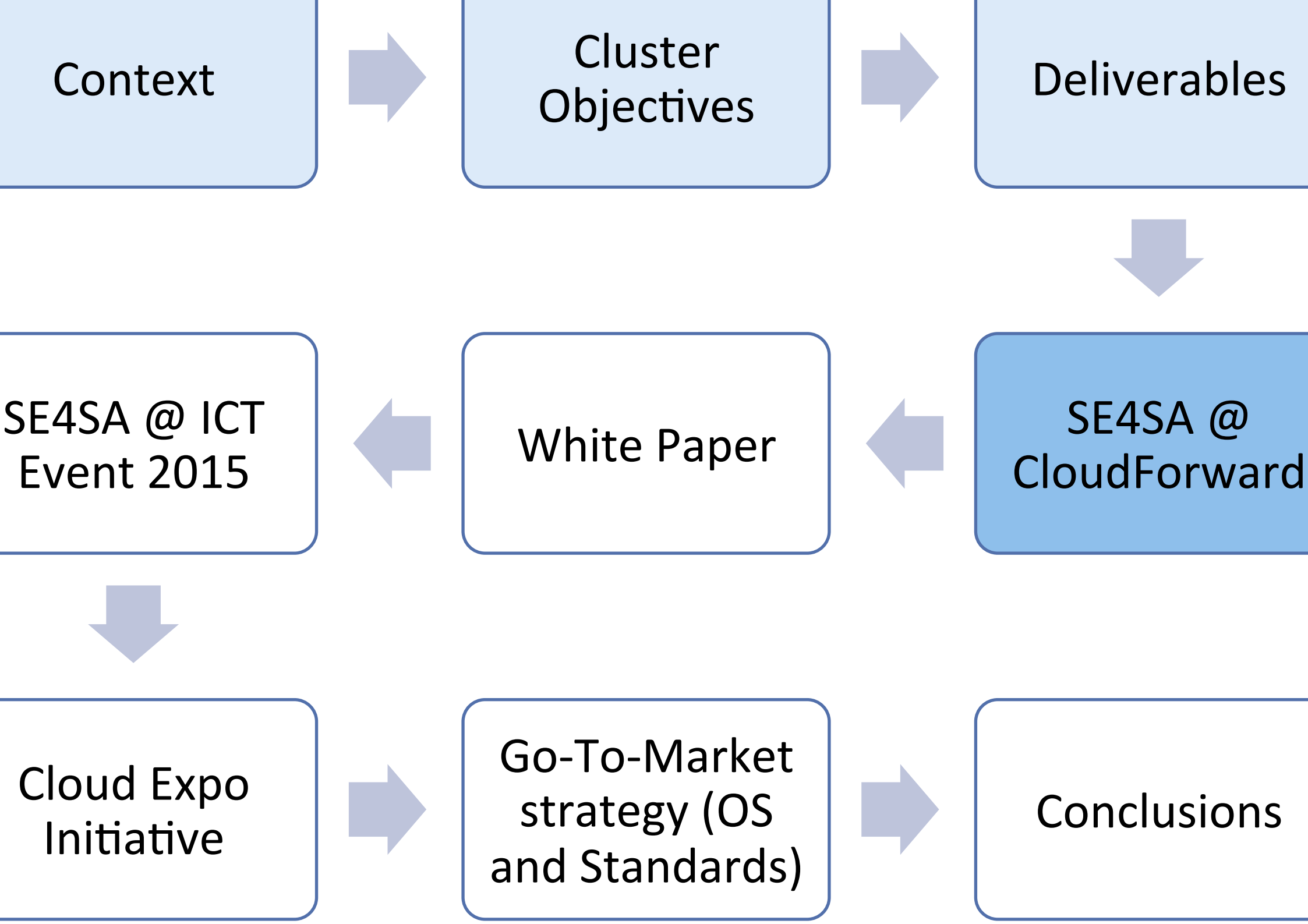
Possibly, a common **book**

A **workshop** or **training** initiative

A **go – to - market strategy** and associated implementation plan

A **catalog of researchers** available to be part of **advisory boards**

An analysis of **standardisation** activities



Context

Cluster Objectives

Deliverables

SE4SA @ ICT Event 2015

White Paper

SE4SA @ CloudForward

Cloud Expo Initiative

Go-To-Market strategy (OS and Standards)

Conclusions

The Cluster SE4SA at CloudForward

October 6th 16.20 – 18.20

Discussion on the presented paper

White paper:

presentation of the current status

discussion about challenges and business cases

organization of the ICT 2015 session

the Cloud Expo initiative

how to get to a “go-to-market”

strategy (open source strategy, business model, ...)



October 7th 10.15 – 11.45

Discussion on the paper presentations

Go-to-market: AppHub presentation

Presented papers

Goals:

-  Find synergies between papers and the possibility to reuse
-  Identify new challenges

Presented papers – Example of challenges (summary)

Are ontologies usable to monitor and control cloud applications? Are these ontologies scalable?

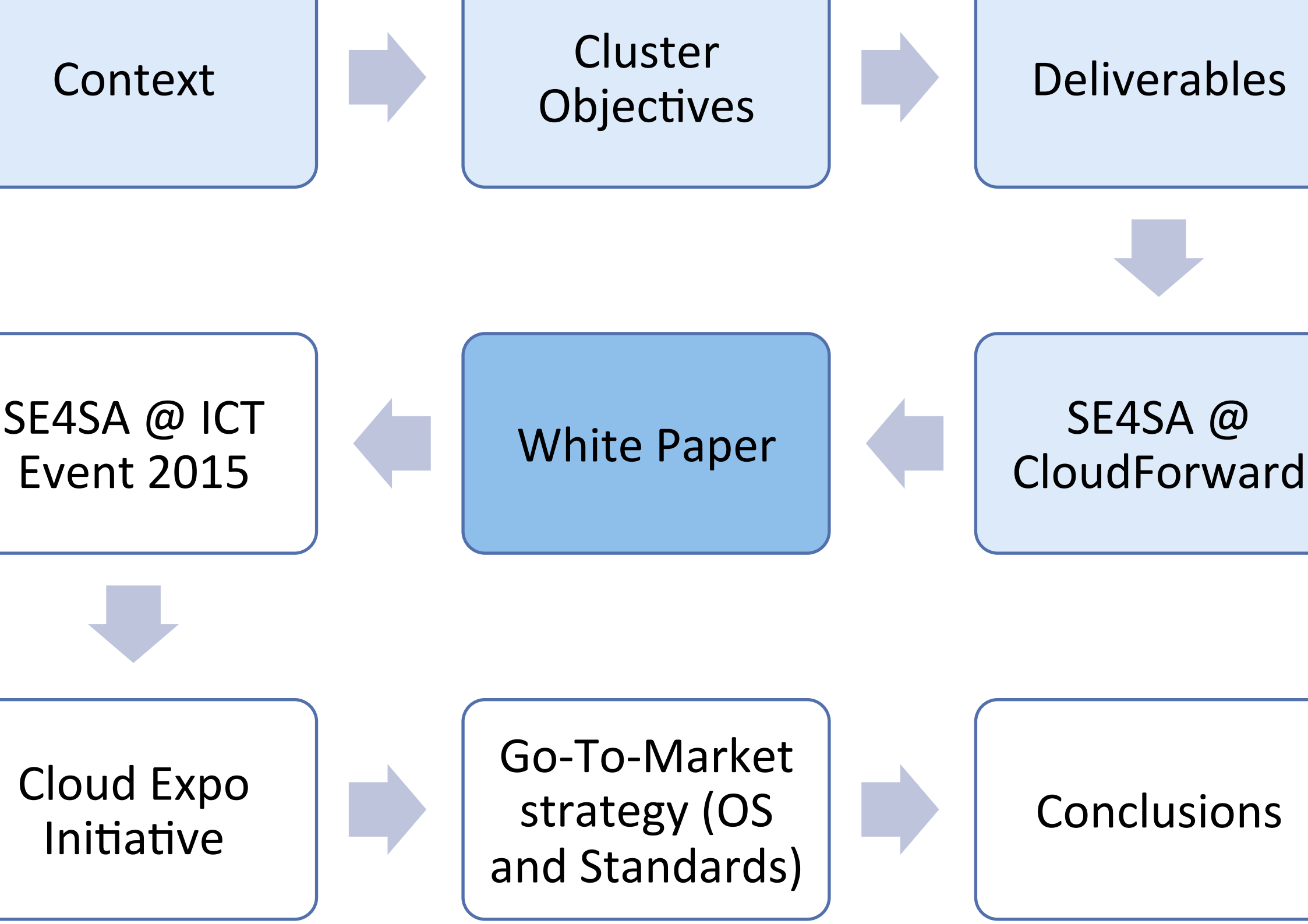
To what extent a cloud –based software system can be adapted?

How can we customize a cloud - based software?

How can be made the internal qualities of a cloud software explicit?

How can we use abstractions to cope with top down traditional model-driven developments and bottom-up availability of cloud services?

How can service providers guarantee SLA in a multi-tenant environment?



Context

Cluster Objectives

Deliverables

SE4SA @ ICT Event 2015

White Paper

SE4SA @ CloudForward

Cloud Expo Initiative

Go-To-Market strategy (OS and Standards)

Conclusions

Whitepaper (1)

Structure

Current challenges (as of October 2015)

Business cases

Mapping of projects to the challenges

Outlook to the future

Whitepaper (2): Taxonomy of challenges

of
15

Design

- Evolution by design
- Self adaptive Systems
- Variability of highly distributed systems

Middleware

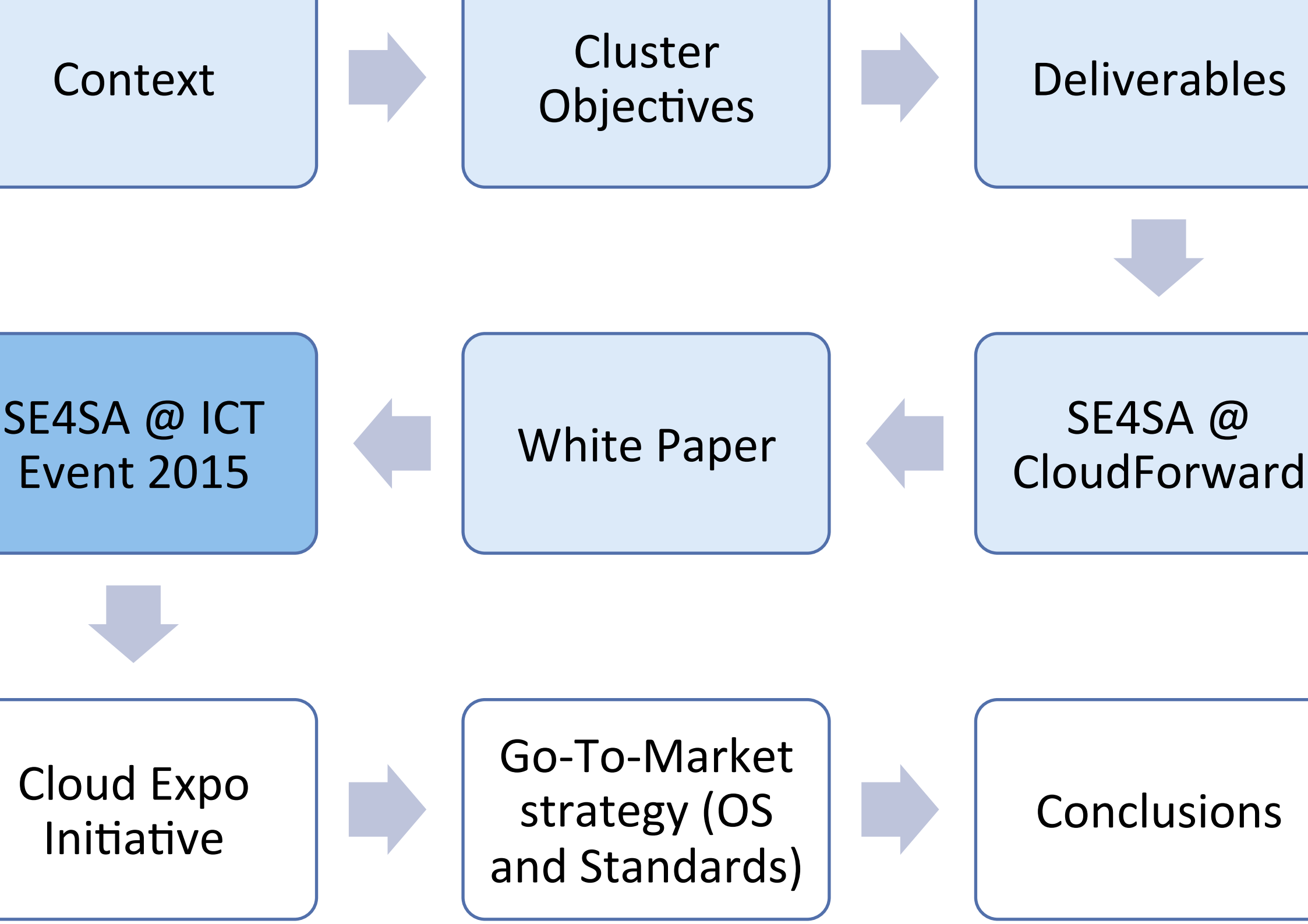
- Programmability issues (SDN / NFV)
- Management of the complexity of large and data intensive systems

Quality

- Quality, maintainability and acceptability of cloud-based software
- Quality evolution

Lifecycle (DevOps)

- Manage the development complexity at design time and runtime of complex applications
- Model-based techniques



Context

Cluster Objectives

Deliverables

SE4SA @ ICT Event 2015

White Paper

SE4SA @ CloudForward

Cloud Expo Initiative

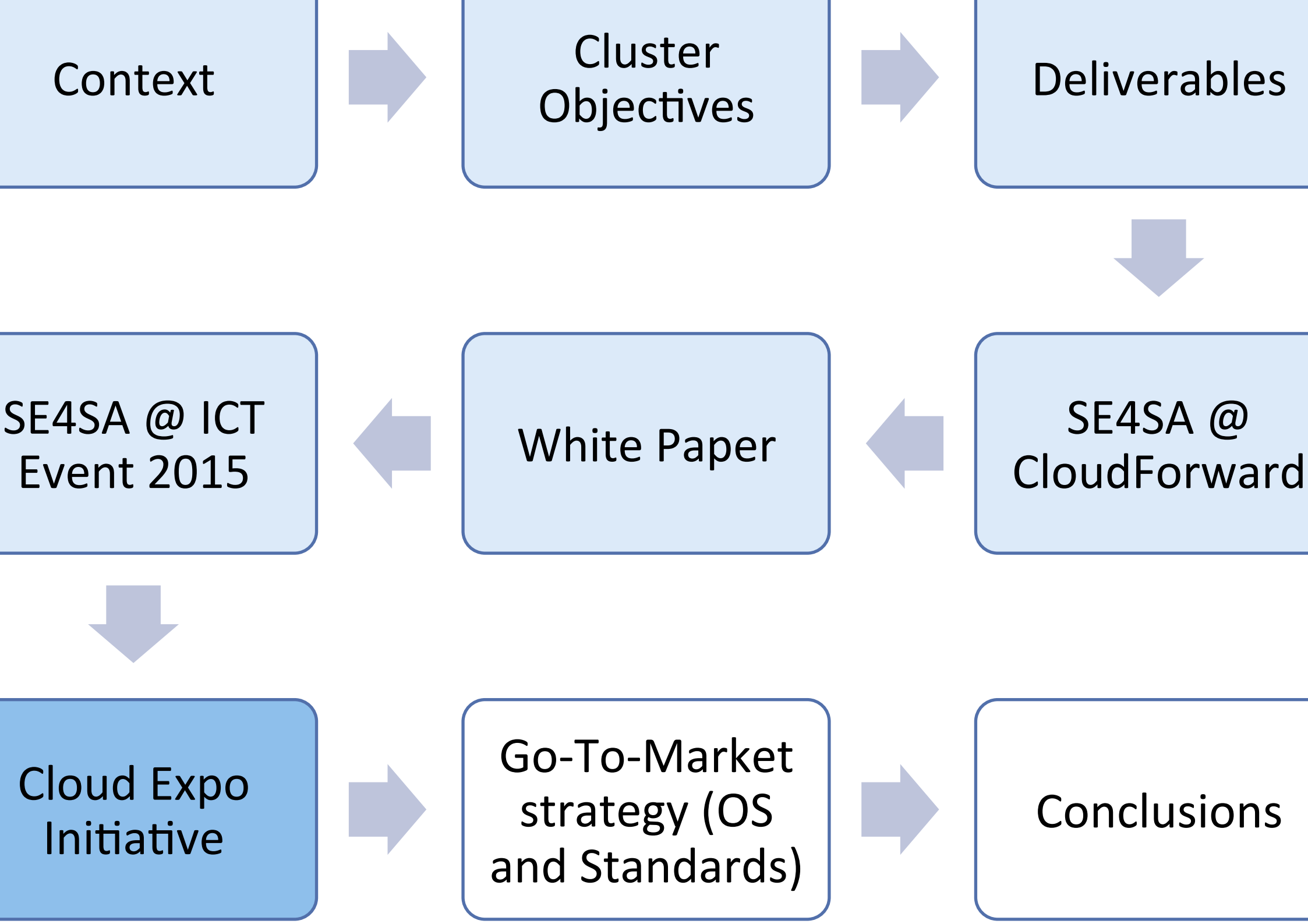
Go-To-Market strategy (OS and Standards)

Conclusions

Short presentation about the white paper

Panel

- Andreas Metzger: Software engineering for big data
- Lutz Schubert: Software engineering for cloud infrastructures
- Cedric Thomas: Open source and software engineering
- All attendees!



Context

Cluster Objectives

Deliverables

SE4SA @ ICT Event 2015

White Paper

SE4SA @ CloudForward

Cloud Expo Initiative

Go-To-Market strategy (OS and Standards)

Conclusions

e Cloud Expo Initiative: 10 – 11.11

Frankfurt, 10th – 11th November

<http://www.cloudexpo-europe.de>

Exhibition and speaking station (1 hour and half)
SWITCH, S_CASE, CloudWave, SeaClouds,
CloudTeams

Cloudian

560

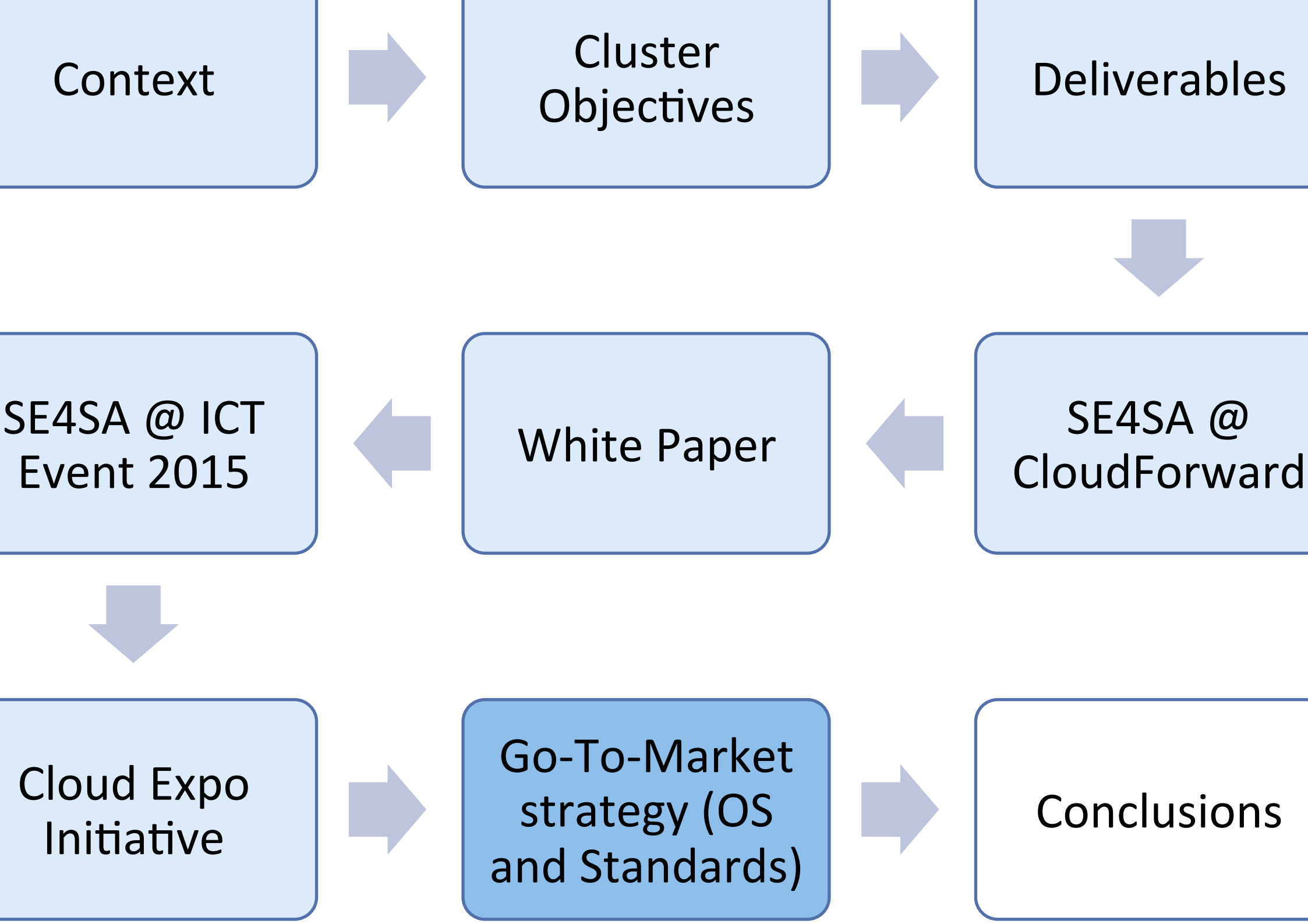
Cloudian is a Silicon Valley-based software company specializing in enterprise-grade smart data storage. Our flagship product, Cloudian HyperStore®, is an S3-compatible storage platform that enables...



Cluster on Software Engineering for Cloud 455

Services and Applications

The goal of the cluster is to create an environment where projects funded by the European Community (in particular, the recipients of FP7 and H2020...



Context

Cluster Objectives

Deliverables

SE4SA @ ICT Event 2015

White Paper

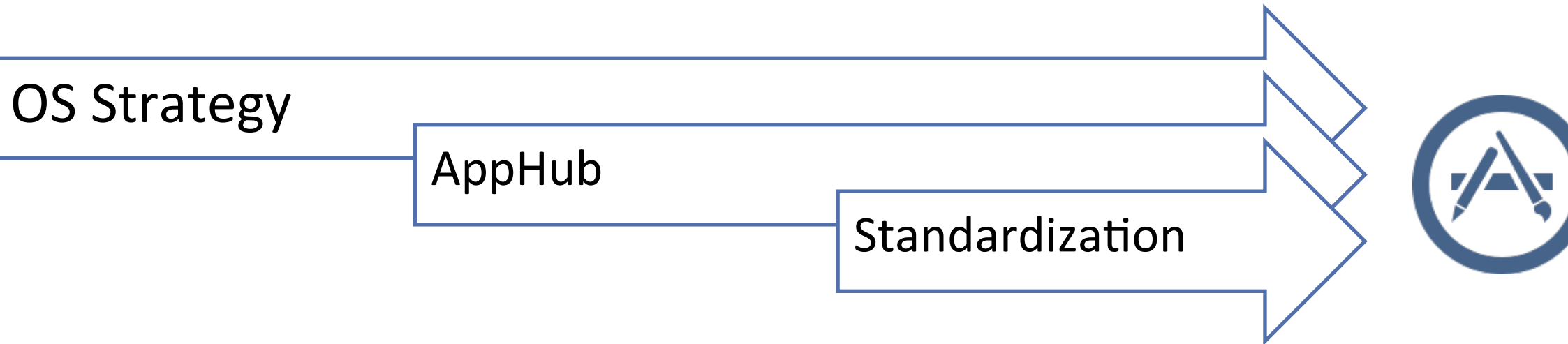
SE4SA @ CloudForward

Cloud Expo Initiative

Go-To-Market strategy (OS and Standards)

Conclusions

-To-Market Strategy



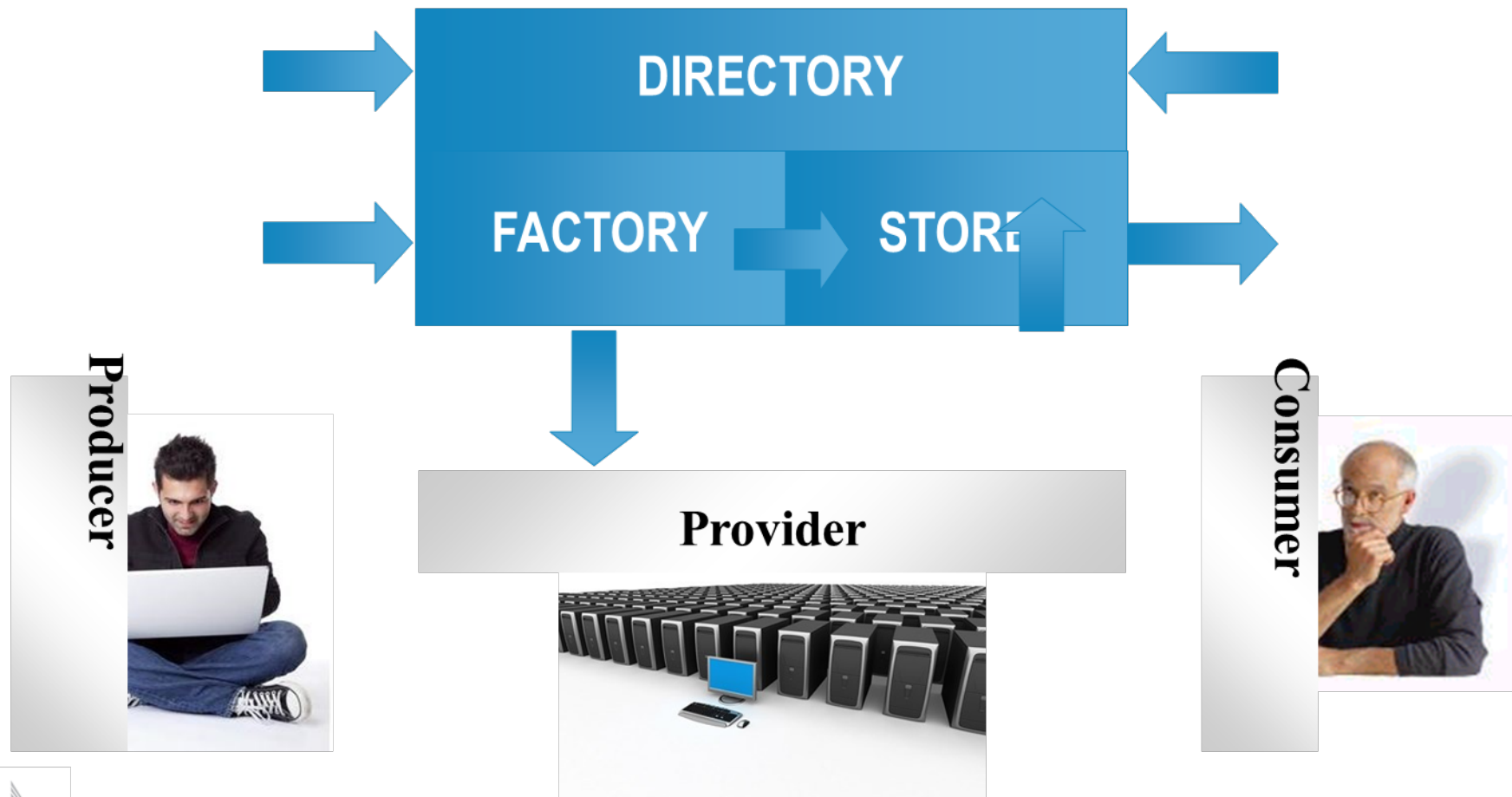
Open-To-Market Strategy: Proposal of the OS task for

Objective: provide a kind of guidelines to help projects to define their own strategy and roadmap for OS

Three phases:

- Define the OS ecosystem for your project
- Define the steps, timeline and actions you could follow
- Monitor the progress of your strategy and the impact

The European Open Source Marketplace



AppHub has received funding from the European Union Horizon 2020 Research and Innovation programme

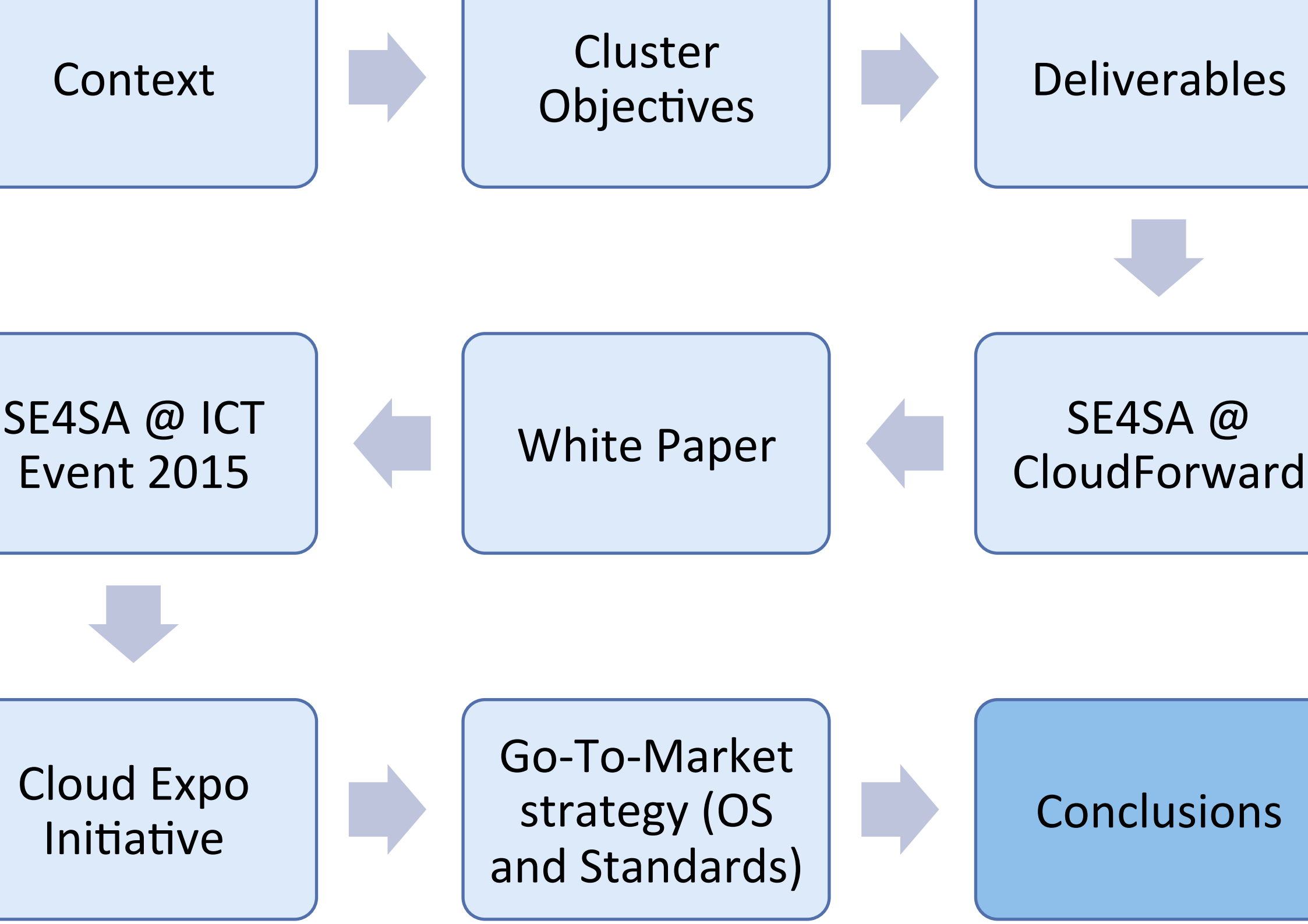
Open-To-Market Standardization

Identify the standards relevant for the projects in the cluster

- Used vs. extended/created

Identify possible subgroups to influence specific standards

Joint initiative with the other clusters (all four of them)



Context

Cluster Objectives

Deliverables

SE4SA @ ICT Event 2015

White Paper

SE4SA @ CloudForward

Cloud Expo Initiative

Go-To-Market strategy (OS and Standards)

Conclusions

conclusions



<https://eucloudclusters.wordpress.com/software-engineering-for-services-and-applications/>

ects

Aligned, AppHub, ARCADIA, ARTIST, CloudTeams, CloudWave, DICE, ENTICE, Envisage, HyVar, MODAClouds, MONDO, Prowess, RISCOSS, SeaCloud S-CASE, Supersede, SWITCH, U-QASAR



Discussion on the presented papers

Smart Cloud Engine and Solution based on Knowledge Base

Developing and operating time critical applications in clouds
the state of the art and the SWITCH approach

A Joint Benchmark-Analytic Approach For Design-Time
Assessment of Multi-Cloud Applications

CIRANO: An integrated programming environment for multi-
tier cloud based applications

witch

What can be adapted?

Knowledge base: no semantically complex but serving specific purposes.

How to link these semantic components to low level components?

Monitoring

Functionalities: packaged in some containers and ready for use, searchable

functionality not by component, orchestration aspect

Within the cluster: facilitate discussion, look at standards

Smart cloud

Designed to a large number of different metrics

Knowledge base is open and can be used by others

Ontologies for assessing behavior of various domains -> good
ground on top of which you can build your solution. Do not start
from scratch

Ready to help in the adoption of ontologies

Assessment of all RDF databases -> ready to share the experience

RDF triples can be processed efficiently in the time scale of the cloud
(minutes/hours)

The approach is scalable

nite paper

Challenges from the 2016-2017 WP

Facilitate the development of more interconnected, flexible, reliable, secure and efficient software

A holistic approach in the software development that goes beyond software production within specific application domains

Challenges from the 2016-2017 WP

Advanced software development approaches and methodologies

Drastically increase development productivity

Drastically increase various dimensions of software quality such as security, reliability, performance, scalability and adaptability.

Challenges from the 2016-2017 WP

Seamless architectures

Innovative architectures, frameworks and platforms addressing the need for evolvable, secure, context-aware and self-adaptive software in highly connected and interoperable systems.

Support for the development and testing of software for distributed systems in heterogeneous environments, addressing issues such as data consistency, reliability, scalability and the efficient use of underlying resources.

Challenges from the second day papers

Cloud allows collaboration among developers and with customers

Abstracting over the physical implementation, both behavior of application and usage of resources

Optimization of application depending on where you deploy and run it

challenges from the audience

Quality of software and production process is not evident

How is this quality made explicit?

Multi-tenancy: how can the user have some control on services that are managed in a multi-tenant way?

How can service providers guarantee SLA in a multi-tenant environment

Challenges from the audience

When talking about desktop apps or client/server apps you need customization

How do you achieve customization in the case of the cloud?

We need to change to way applications are being designed

Allowing better maintainability/extendability of software

Challenges from the audience

Software product created from business requirements, be more abstract, go down through technical layers

The problem is that you need to be expert in all layers

And you need to propagate back information from lower layers to upper layer

Interoperability concerning data of cloud applications, privacy

Do you think the top-down approach is sufficient?

Abstraction is important

Management of state in cloud applications
