security is not an island

HILTON MALTA

24th Annual FIRST Conference MALTA

17 - 22 June 2012

FIRST

Improving Security Together

FROM ZERO TO CERT IN 60 DAYS

IN 35 MINUTES

SINDRI BJARNASON, CERT-IS

INTRODUCTION

In August 2011, a three man team was given the task of establishing a national CERT in Iceland ...

Pressed for time and under severe budgetary constraints, they pressed on towards this goal ...

This is their story ...

CERT-IS: CURRENT STATUS

- The team operates as a branch of the Icelandic Post and Telecommunication Administration (Telco Regulatory Authority)
- Legislation “enacted” in spring 2012 as an addendum to the local telecommunication act
- Icelandic Telecommunication companies form the initial constituency (along with picking up the tab)
- Constituency expansion scheduled for Q4 2012

TALK OUTLINE

- This talk is intended to address some of the key challenges likely to emerge during the founding of a CERT team (a national CERT in particular) using CERT-IS as a frame of reference
- We will cover the 60 day period that followed our initial implementation and focus on the pivotal role AbuseHelper played during the founding process

TALK FORMAT

Observations

Observations made with the benefit of hindsight will appear in this box

Lessons learnt

We made a lot of mistakes along the way, the details of the more severe ones will appear in this box

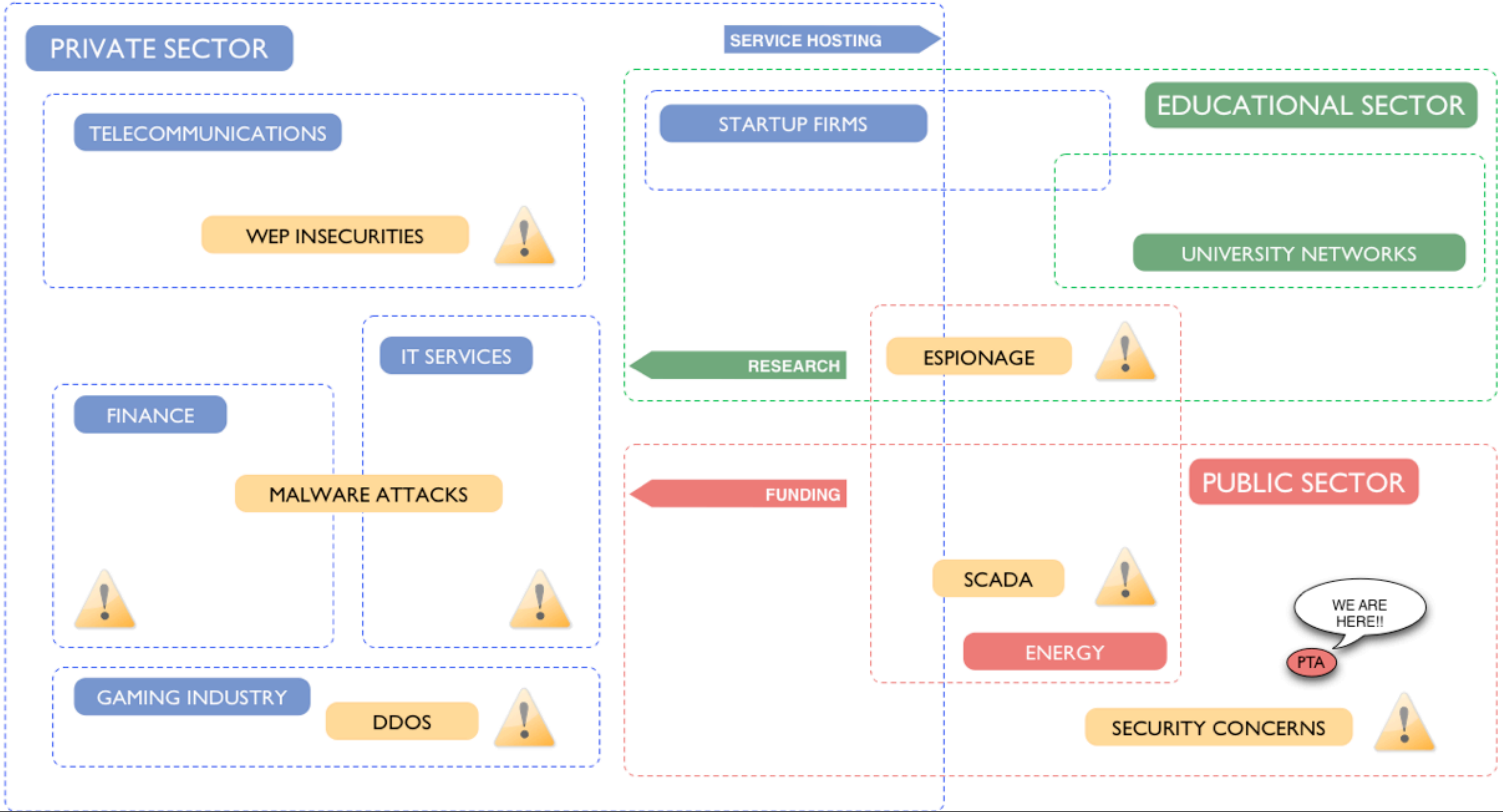
THE DIGITAL LANDSCAPE

FROM ZERO TO CERT IN 60 DAYS

Networked nation, high availability for Internet connectivity

Network security getting more exposure by the media

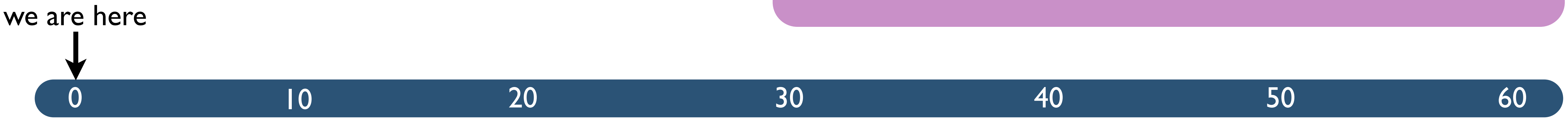
Increased pressure at the government level to address public system security



CERT-IS: GROUND ZERO

- Late September 2011, we find ourselves facing an existential dilemma!
- The increased number of abandoned projects hints at a general lack of direction
- CERT-IS was being designed as a ready-to-run product

✗ This period can be called the "savior complex"-era. It is not until we left our own egos at the door that actual progress was made.



we are here

0 10 20 30 40 50 60

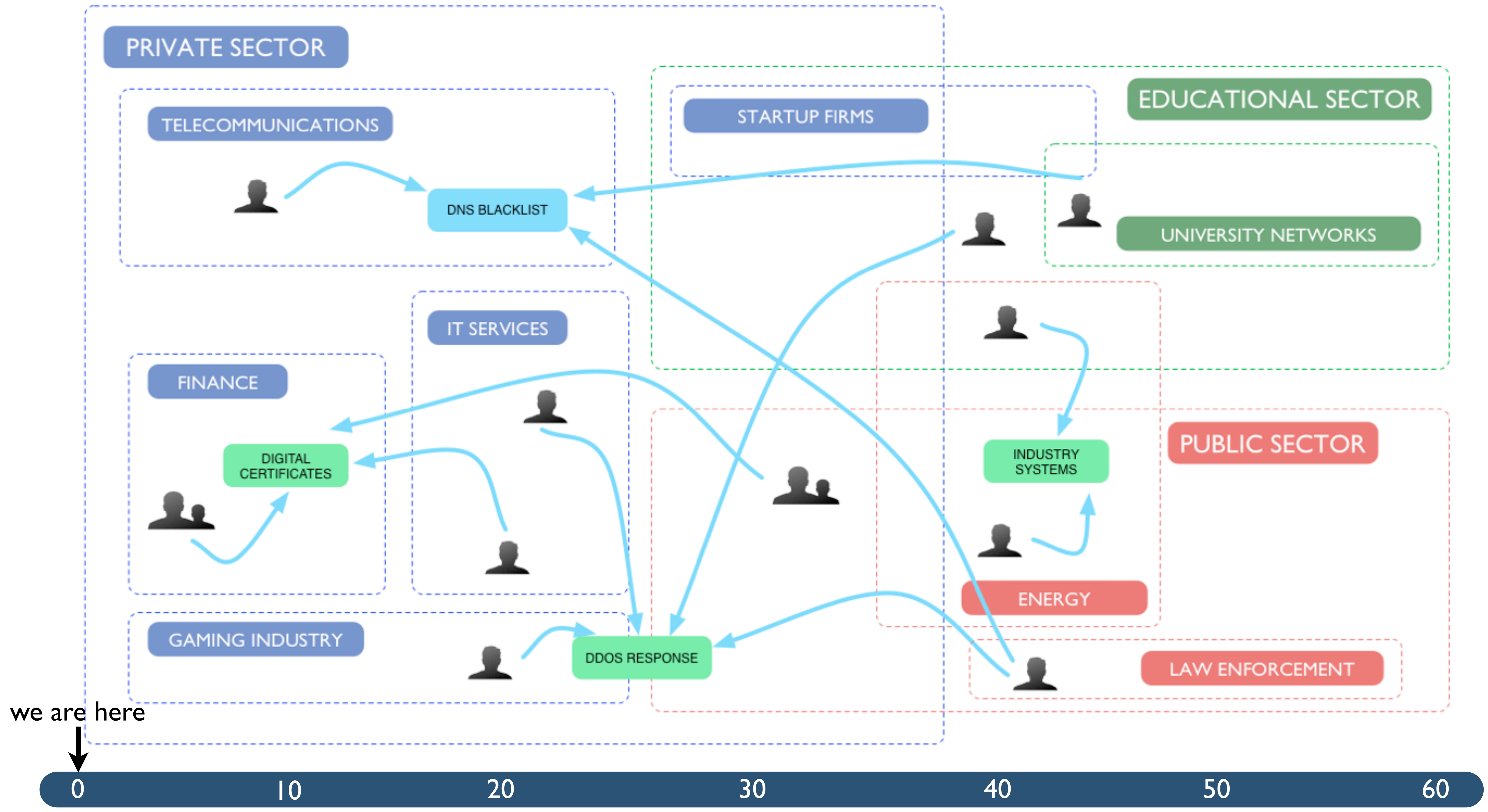
IS IT AN ECOSYSTEM?

FROM ZERO
TO CERT IN 60
DAYS

proactive collaboration

reactive collaboration

Observations of recent infosec-related processes



IT IS AN ECOSYSTEM

- Within there is a continuous cycle of evolution in response to security threats
- Opportunities for quick integration, i.e. easy visibility, tend to reside near reactive events as opposed to proactive ones
- By ignoring the importance for integration, we were making our team success dependent on our own expertise

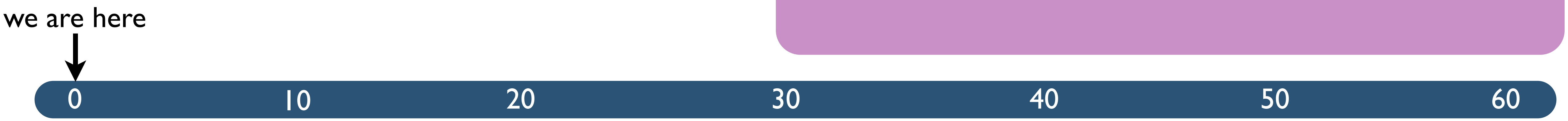
The relationship between our CERT team and that of our constituency is symbiotic, to be sustainable it must be mutually beneficial

THE NEW DIRECTION

FROM ZERO
TO CERT IN 60
DAYS

- We made the decision to become useful!
- Less “educated guesses”, more “concrete requirements”
- New motto: “maximum utility, minimum effort”
- Collaboration a priority

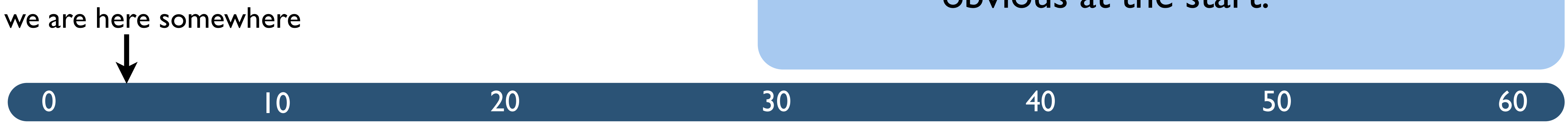
✗ We made the mistake of approaching collaboration formally at first, which is suboptimal until your team becomes “established”



DAY 0+K | K IS A SMALL INT

- Once we went utility-oriented, the necessity for data became obvious
- “Situational awareness” the concept formerly known as “we could really do with some data”
- Data acquisition and processing is an easy thing to get wrong, especially in “exploratory” fashion

The importance of data acquisition and the impact it had on our development as a team was not obvious at the start.


we are here somewhere

0 10 20 30 40 50 60

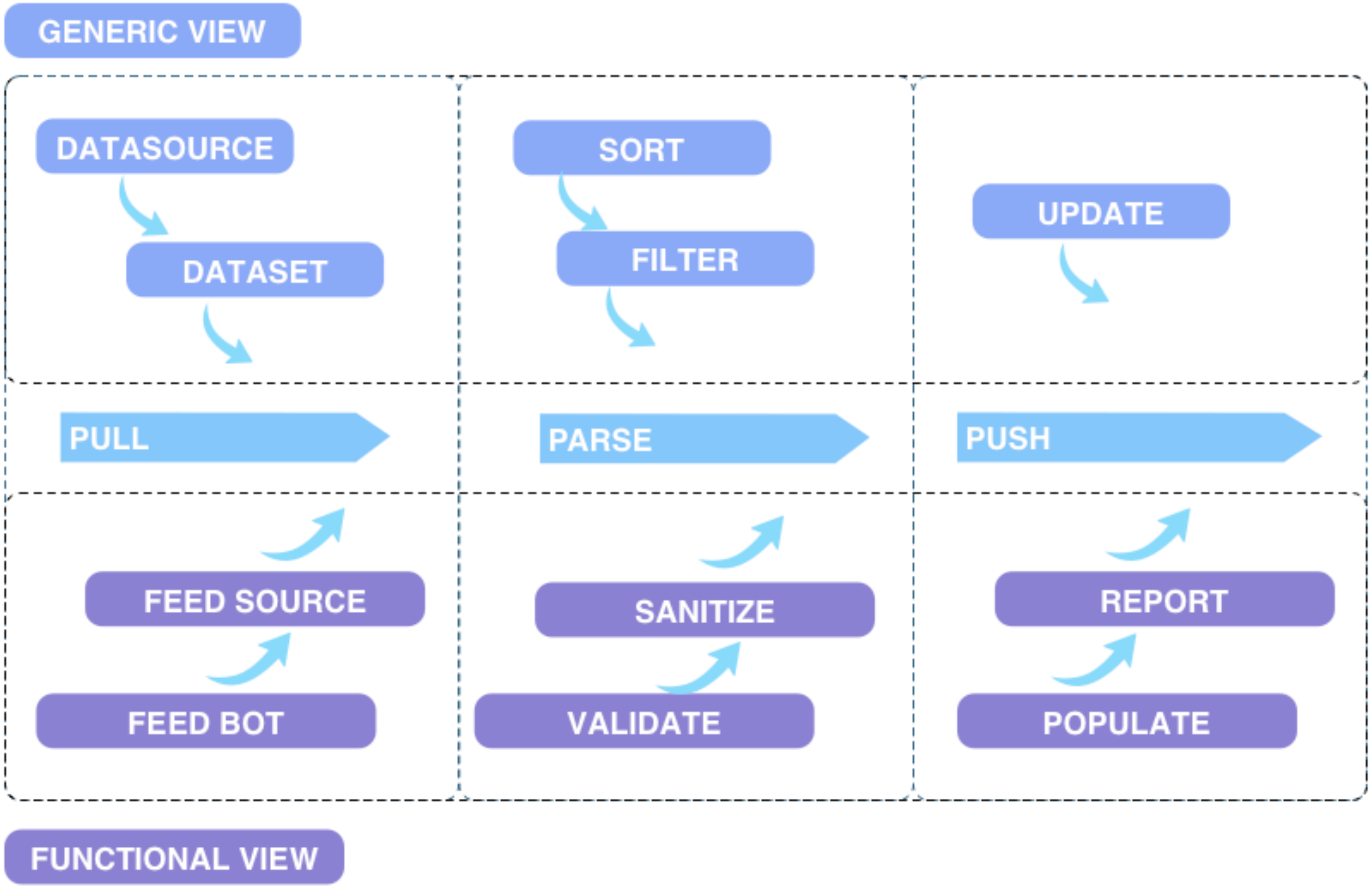
ABUSEHELPER

- Our team force multiplier
- Data acquisition framework that happens to be tuned towards incident handling
- Standard and reusable components
- Under active development

> “AbuseHelper is a modular and (hopefully) scalable and robust framework to help you in your abuse handling”

FAMILIAR MODEL

FROM ZERO TO CERT IN 60 DAYS



GENERIC VIEW

DATASOURCE

DATASET

SORT

FILTER

UPDATE

PULL

PARSE

PUSH

FEED SOURCE

FEED BOT

SANITIZE

VALIDATE

REPORT

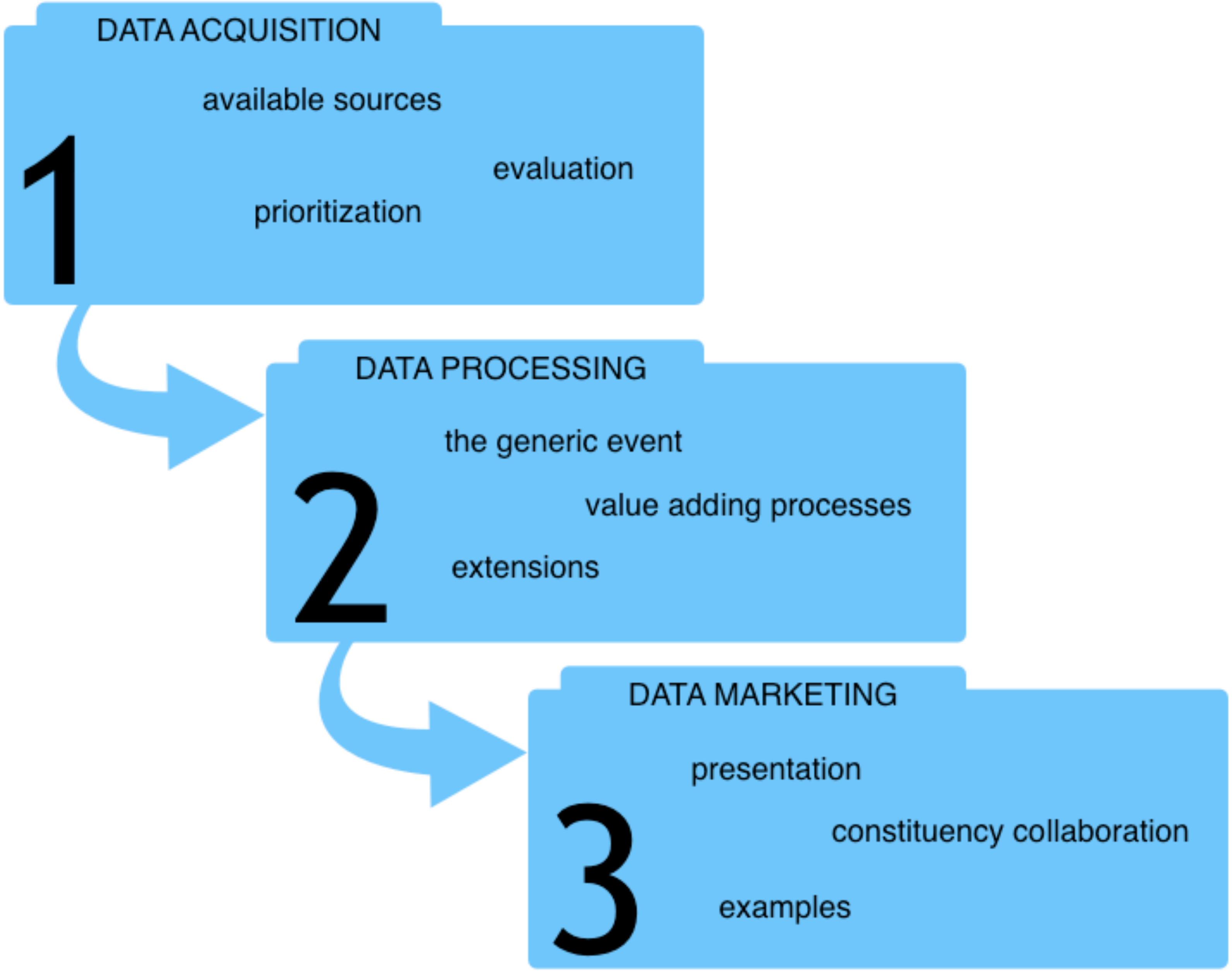
POPULATE

FUNCTIONAL VIEW

we are here
0
10
20
30
40
50
60

THE 60 DAY PROGRAM

FROM ZERO
TO CERT IN 60
DAYS



DATA ACQUISITION

1

available sources

evaluation

prioritization

DATA PROCESSING

2

the generic event

value adding processes

extensions

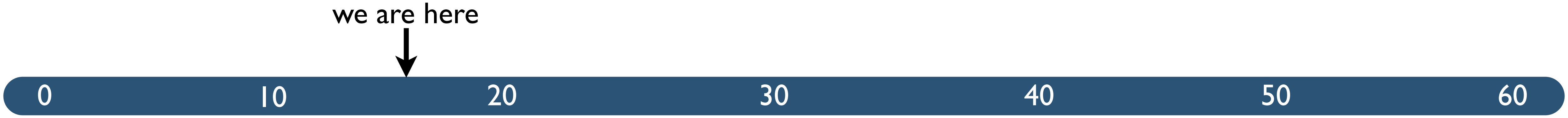
DATA MARKETING

3

presentation

constituency collaboration

examples

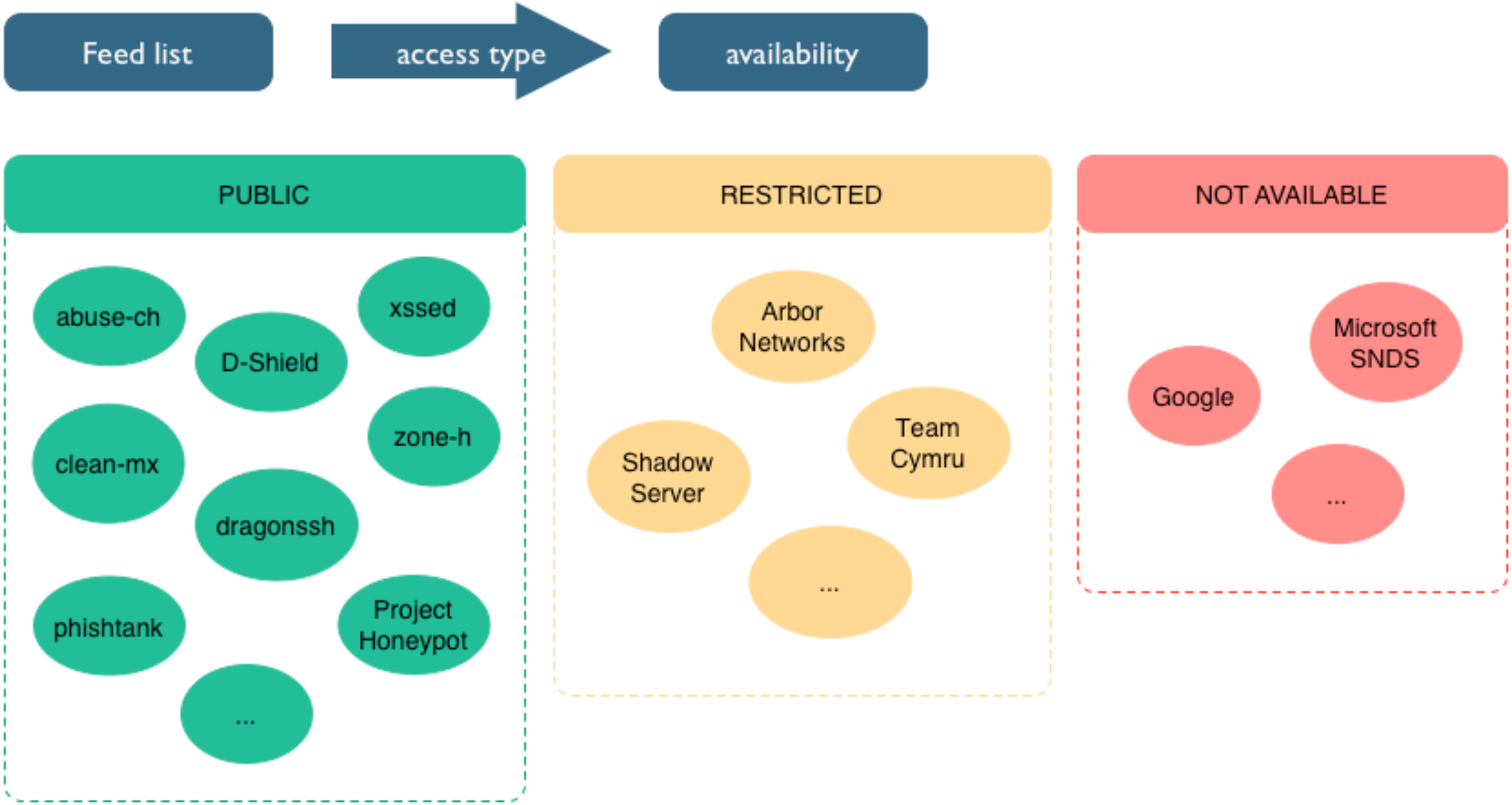


STEP 1: DATA ACQUISITION

- AbuseHelper has built-in support for most transport types (www, RSS, xml, ...)
- Community aspect of AbuseHelper has real value
- Extensive list for available sources can be found as part of their AbuseHelper Wiki site (“feeds”)
- Useful reference for any CERT team

we are here
0
10
20
30
40
50
60

STEP 1.1: EVALUATION



Feed list → access type → availability

PUBLIC

- abuse-ch
- D-Shield
- xssed
- clean-mx
- zone-h
- dragonssh
- phishtank
- Project Honeypot
- ...

RESTRICTED

- Arbor Networks
- Shadow Server
- Team Cymru
- ...

NOT AVAILABLE

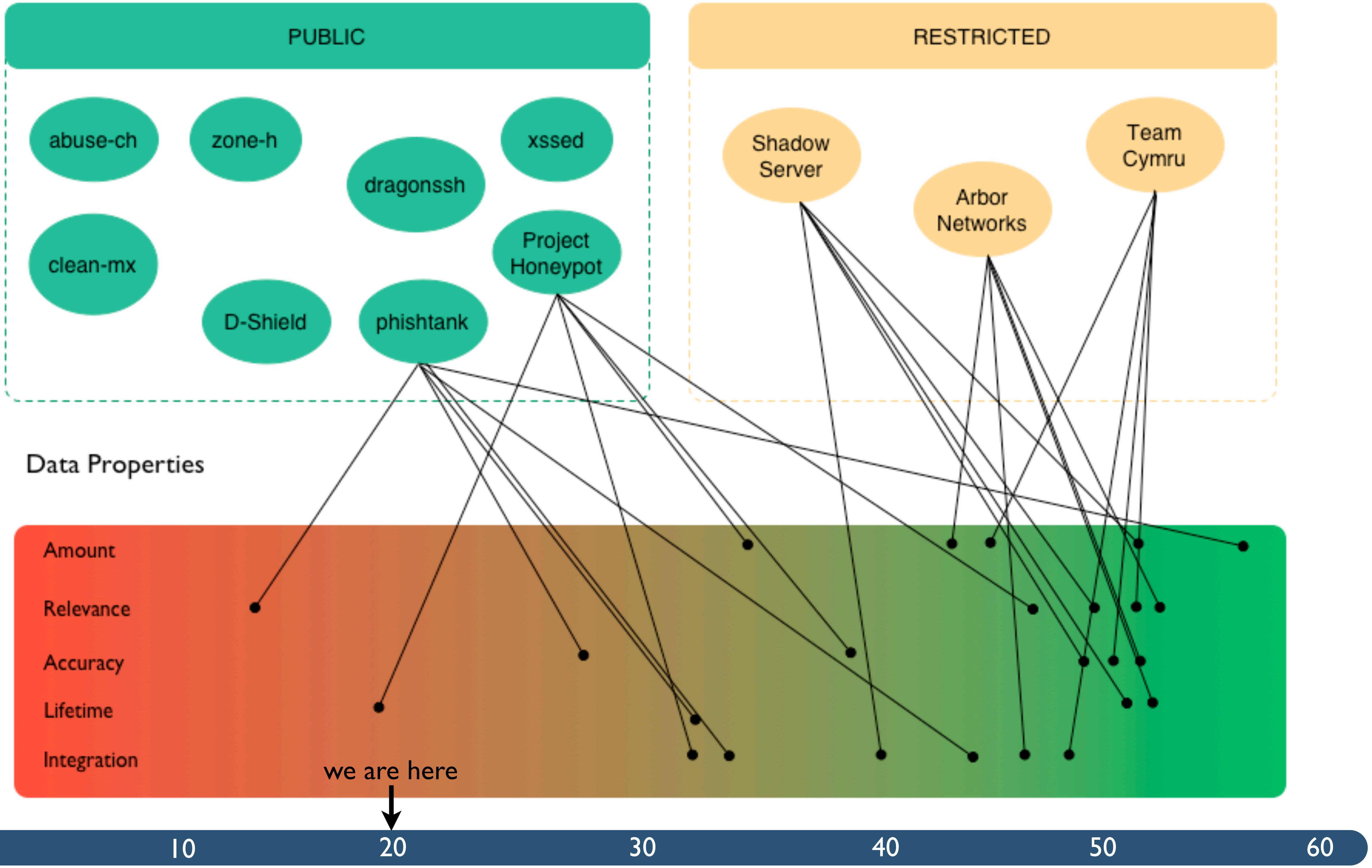
- Microsoft SNDS
- Google
- ...

we are here

0 10 20 30 40 50 60

STEP 1.2: QUALITY CONTROL

FROM ZERO TO CERT IN 60 DAYS



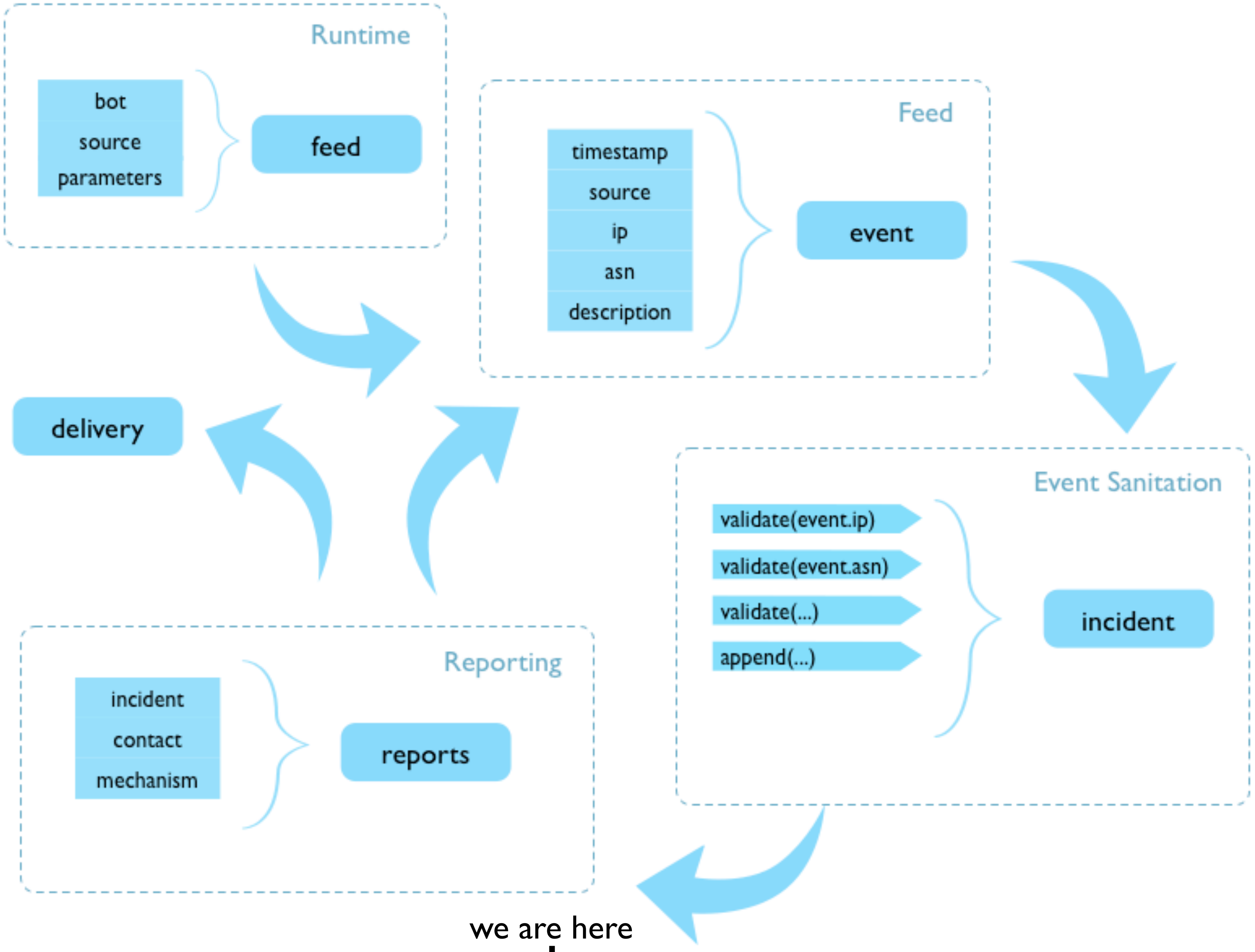
STEP 2: DATA PROCESSING

- Integration of known sources is trivial*
- *processing the data is the next challenge
- AbuseHelper (by design) ships with limited processing capabilities
- The quality of the data processing implementation becomes a governing factor for future expansions, take care of your data at this point

we are here
0
10
20
30
40
50
60

STEP 2.1: DEFAULT BEHAVIOR

FROM ZERO TO CERT IN 60 DAYS

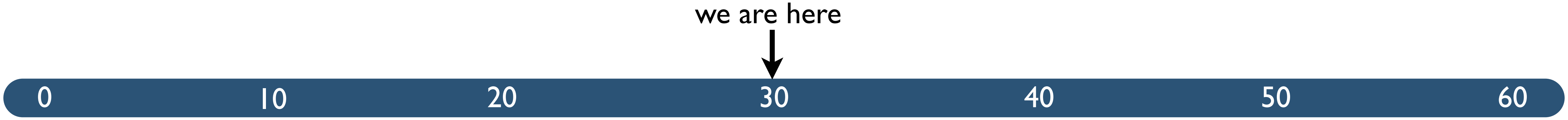


we are here

0
10
20
30
40
50
60

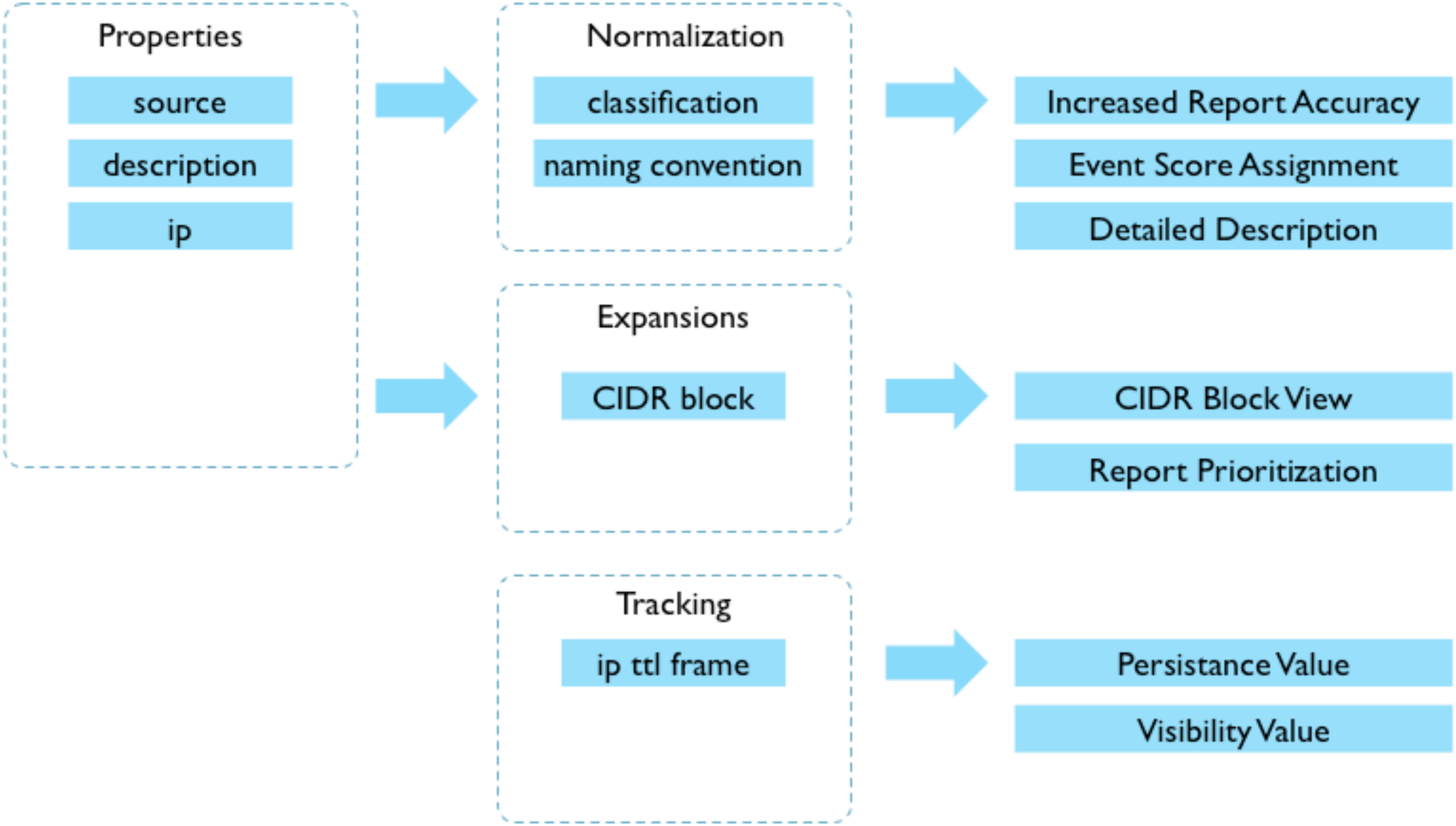
STEP 2.2: EXTENSIONS

- Was there a need to extend AbuseHelper?
  - The distribution of events is heavily clustered
  - Sending reports is not an optimal form of introduction
  - Each event carries limited information
- Opportunity for collaboration with the constituency



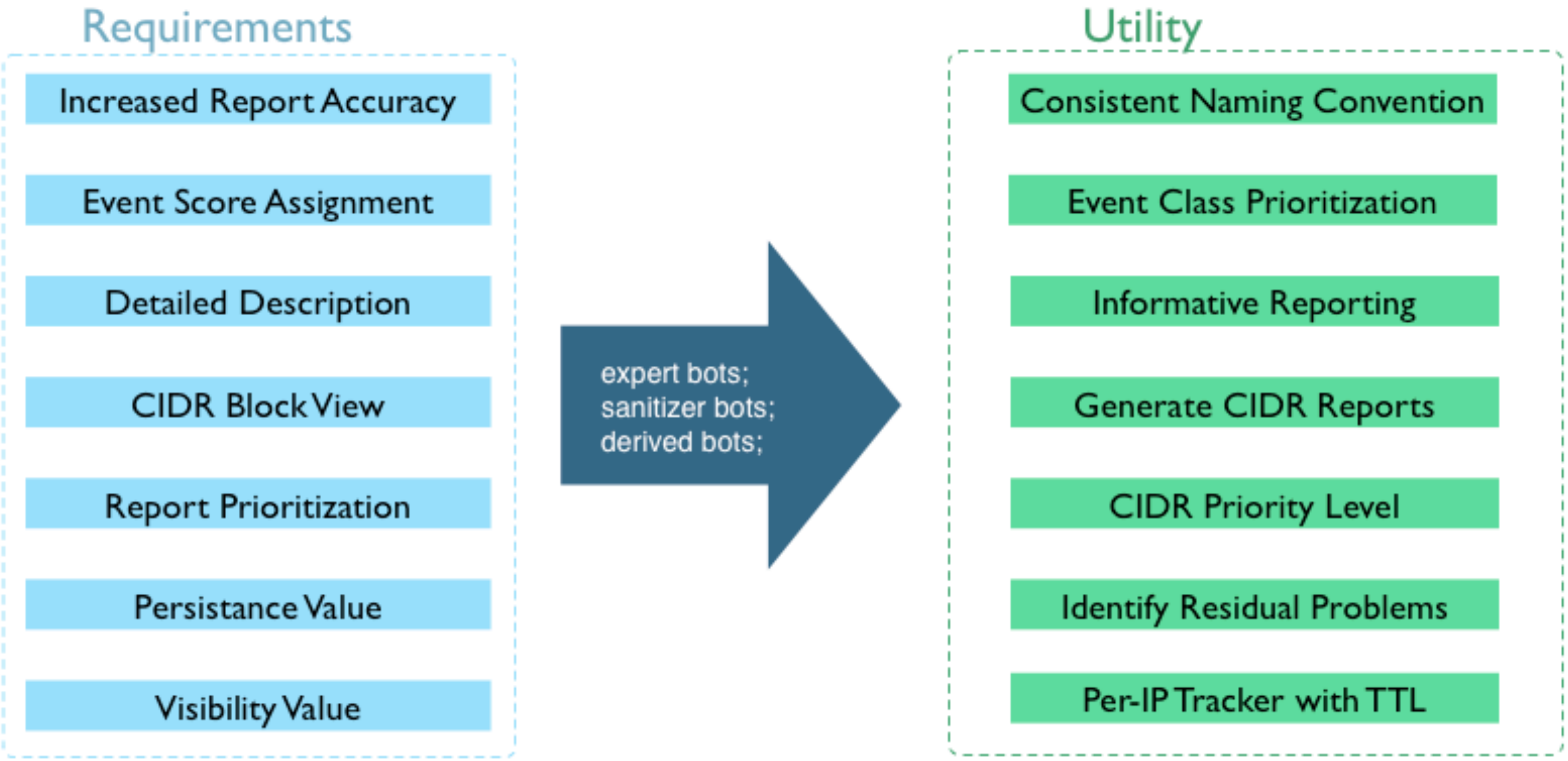
STEP 2.2: EXTENSIONS

FROM ZERO TO CERT IN 60 DAYS



we are here
0
10
20
30
40
50
60

STEP 2.2.1: EXTENSIONS



Requirements

- Increased Report Accuracy
- Event Score Assignment
- Detailed Description
- CIDR Block View
- Report Prioritization
- Persistance Value
- Visibility Value

expert bots;
sanitizer bots;
derived bots;

Utility

- Consistent Naming Convention
- Event Class Prioritization
- Informative Reporting
- Generate CIDR Reports
- CIDR Priority Level
- Identify Residual Problems
- Per-IP Tracker with TTL

DAY 60: EVALUATION

- Automated reports (generated daily|weekly)
  - Situational awareness for our team
  - Tool for our constituency: getting familiar with the types of problem; the impact on their networks and estimated workload
  - Identification of emerging problems as well as residual ones

STEP *n*: DATA MARKETING

Data Marketing Examples

illegal reference

0 10 20 30 40 50 60

CERT-IS: THE BIG LESSONS

- Commit early to your data acquisition, ensure your infrastructure has the capacity to support and maintain such processing
- Do not isolate your team, make networking an early priority
- Get your constituency involved in the data processing step
- Consider AbuseHelper to be a continuous effort

CERT-IS: OUR TIMELINE

FROM ZERO TO CERT IN 60 DAYS

The past 10 months

FROM ZERO TO CERT IN 60 DAYS

QUESTIONS?

Appendix

ClarifiedNetworks:
https://www.clarifiednetworks.com/

AbuseHelper:
https://bitbucket.org/clarifiednetworks/abusehelper/

AbuseHelper Installation:
https://bitbucket.org/clarifiednetworks/abusehelper/wiki/INSTALL

AbuseHelper Extension Package:
# TBA #

CERT-IS:
cert@cert.is ; sindri.bjarnason@cert.is