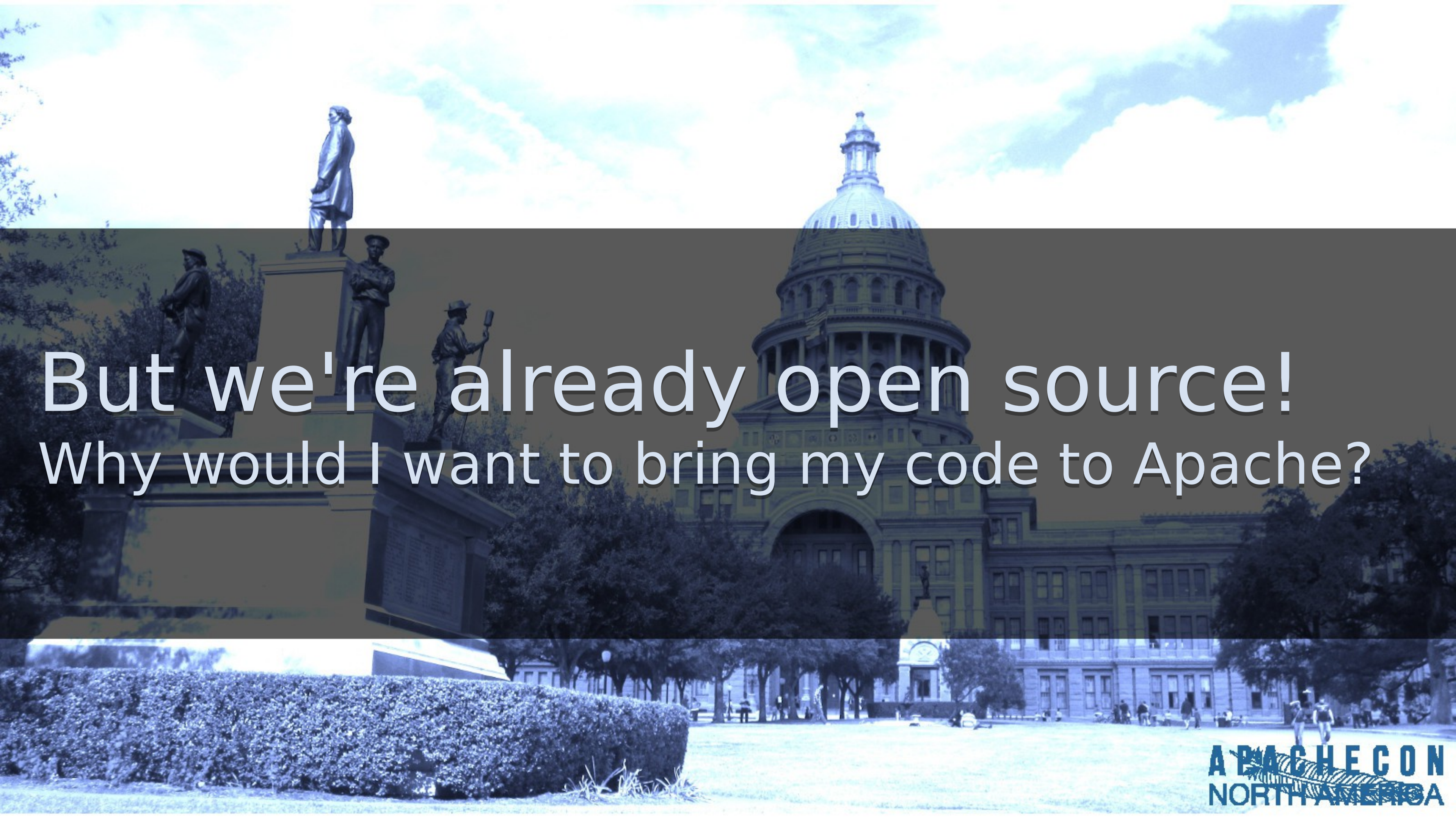

But we're already open source!

Why would I want to bring my code to Apache?

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Nick Burch

CTO, Quanticate

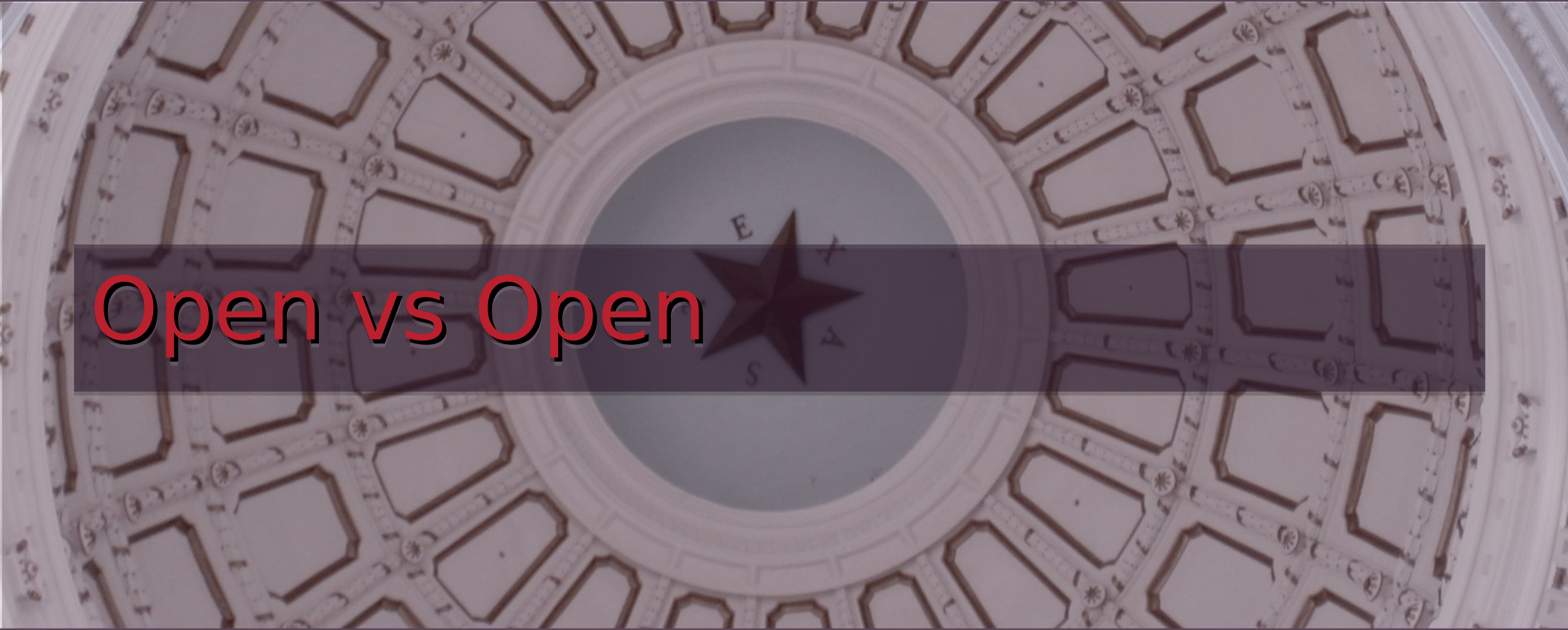
Open, Open and Open!

- Open vs Open Source
- The ASF – What's the deal?

- Case Study 1 – Alfresco and Apache Tika
- Case Study 2 – Alfresco and Apache Chemistry
- Case Study 3 – Alfresco and Activiti

- The Benefits
- And the downsides...

Open vs Open



Open Source

“denoting software for which the original source code is made freely available and may be redistributed and modified”

- You can get the source behind a program (if you want)
- You can study it, learn from it, understand it, debug it
- You can make changes to it (or pay someone else to)
- You can use your new version without having to pay
- You can share your changes and improvements
- There is a license, but it's a distribution not use one

Open Development

- Open Source is all about the software today
- Open Development is about the software tomorrow
- Quite possible to be Open Source but Closed Development

- Who decides what the priorities are?
- Where do those discussions happen, and are they shared?
- Who can influence the direction of the project?
- Who can contribute (directly or indirectly)?
- Who dictates releases, “done” etc?

Copyright Assignments

- Applies when you want to contribute a fix or enhancement
- Assignement requires you sign over your rights to your changes to another entity, to do with as they wish
- Most common with Commercial+CopyLeft
- Can be used “for good”, to permit relicensing in future, and to allow a central entity to fight infringement claims
- Can be used “for money”, to allow a company to license out your changes to their enterprise customers
- Typically very divisive, problems if not accepted

CLAs (License Agreements)

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- At first glance, these look quite similar
- Legal agreement about a contribution
- But... Very different kettle of fish!

- Copyright Assignment requires you hand over your rights
- CLAs are about ensuring you understand the open source license, and are allowed to contribute under it
- “License says you can have this, and I confirm you can”
- Paper trail of contributions
- Defends against “but that's *our* code!”

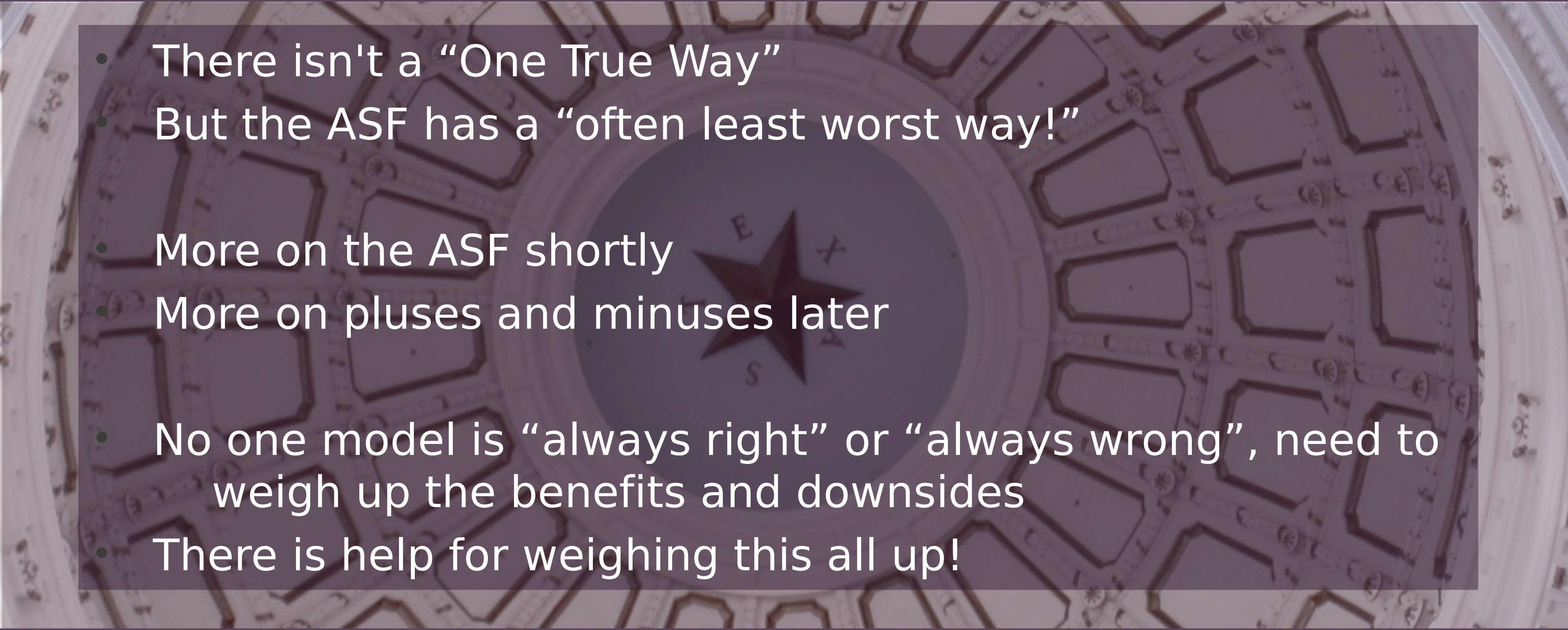
Community Direction

- Within any project, whether open or closed, proprietary or shared, there's a process to decide on direction
- When will the next release be considered “done”?
- What features should be worked on? Not worked on?
- What's the vision for the project? What's out of scope?
- Who can join in? Who can contribute?
- How are new changes reviewed+accepted? And by who?
- How are conflicts and debates handled? Who has a say?
- How can this be changed over time?

Licensing

- All Open Source licenses are distribution licenses
- Use of the software is free (support + add-ons may not be!)
- To broad families of Open Source licenses
  - Copyleft (eg GNU-GPL, LGPL)
  - Permissive (eg Apache License, BSD, MIT)
- Strong philosophical differences divide, plenty of license flame-wars online debating all of these!
- Have different restrictions on building on top of them
- Influences the business models you can build on top

Many Models



- There isn't a “One True Way”
- But the ASF has a “often least worst way!”

- More on the ASF shortly
- More on pluses and minuses later

- No one model is “always right” or “always wrong”, need to weigh up the benefits and downsides
- There is help for weighing this all up!

The Apache Software Foundation

What is the ASF?

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- US 501(c)3 not-for-profit foundation
- Founded in 1999 with one project (webserver)
- Today has over 150!

- Meritocratic, community driven open source
- Anyone can get involved, and not just as a coder
- Decisions taken by the community
- Work done by volunteers
- Open Development, friendly to business involvement

Driven by projects

- A number of projects
- Each project is responsible for their own code, community and direction
- Board provides oversight, but that's it
- Board has no say on what code gets written, nor what direction projects take, nor what projects we should start. All of that is devolved to the projects themselves
- Foundation has some common support (eg infra, press, trademarks), to help projects focus on their code and on their communities

For more on the Apache Way
Slides/Recordings from Monday

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Case Study 1: Alfresco and Apache Tika

Alfresco

- Open Source Enterprise Content Management
- >1 million active users, >4 million downloads, plus Cloud
- Open Source, but not Open Development (mostly)
- Written mostly in Java and JavaScript
- ECM – Capture, Manage, Store, Preserve, Deliver, Search, Collaborate, within and between organisations
- Includes Document Management, Records Management, Asset Management, WCM, Workflow etc
- Alfresco is Open Source, and builds on lots of of Open Source projects, especially from Apache and Spring

Metadata & Transformers

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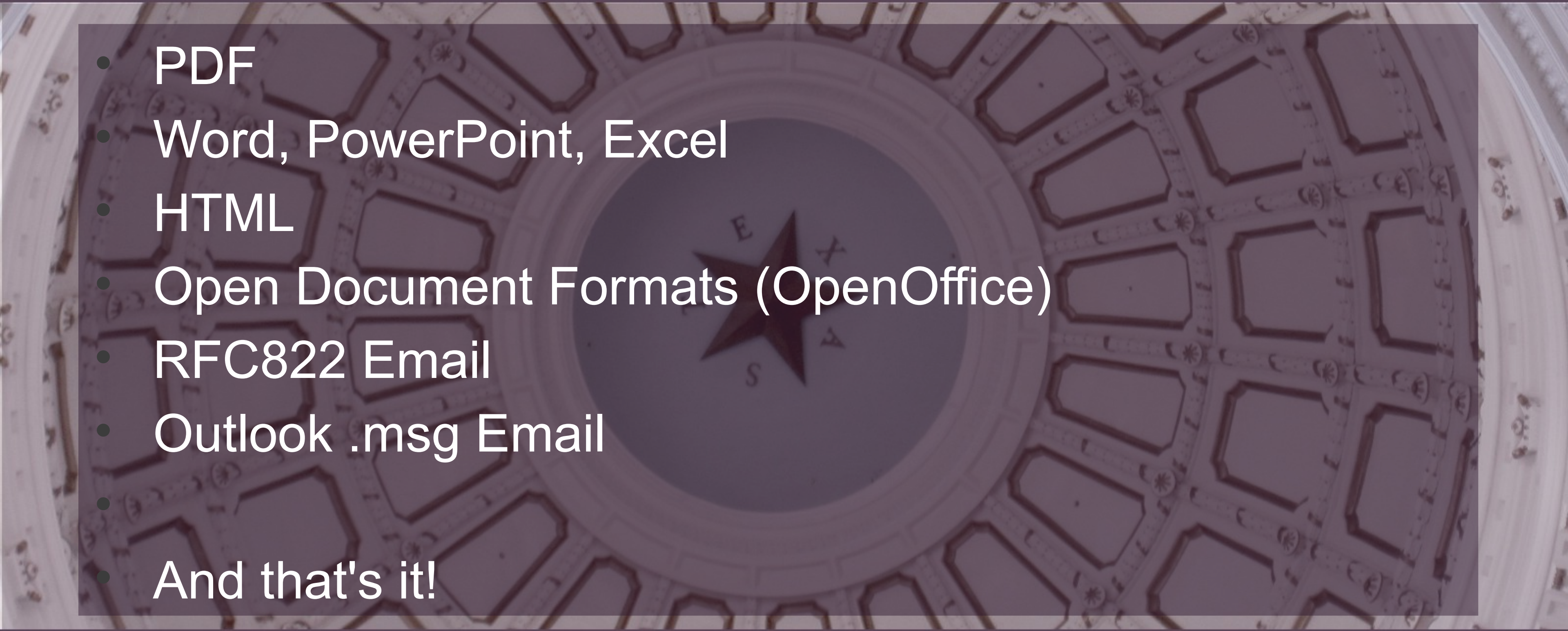
- Content Transformers and Metadata Extractors are core Alfresco services, present from the very start
- Transformers are used for full text indexing, web previews, icons, web friendly versions etc
- Metadata Extraction used to synchronise the document properties with the repository
- Both normally used with uploaded binary files
- eg upload a Word Document, text extracted for indexing, PDF version generated, title + author extracted

Alfresco 3.3 - Formats



- PDF
- Word, PowerPoint, Excel
- HTML
- Open Document Formats (OpenOffice)
- RFC822 Email
- Outlook .msg Email
-
- And that's it!

Apache Tika tika.apache.org

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- Apache Project, started in 2006
- Initially grew out of Lucene, but now very widely used
- Provides detection capabilities – eg this is a Word Doc
- Parsers for a very wide range of formats
- Extracts metadata, and provides a consistent model, eg created by vs author
- Textual content available as Plain Text and XHTML
- Hides complexity of file formats and librarys, presents a simple and powerful API across all of them
- Easy to use and extend

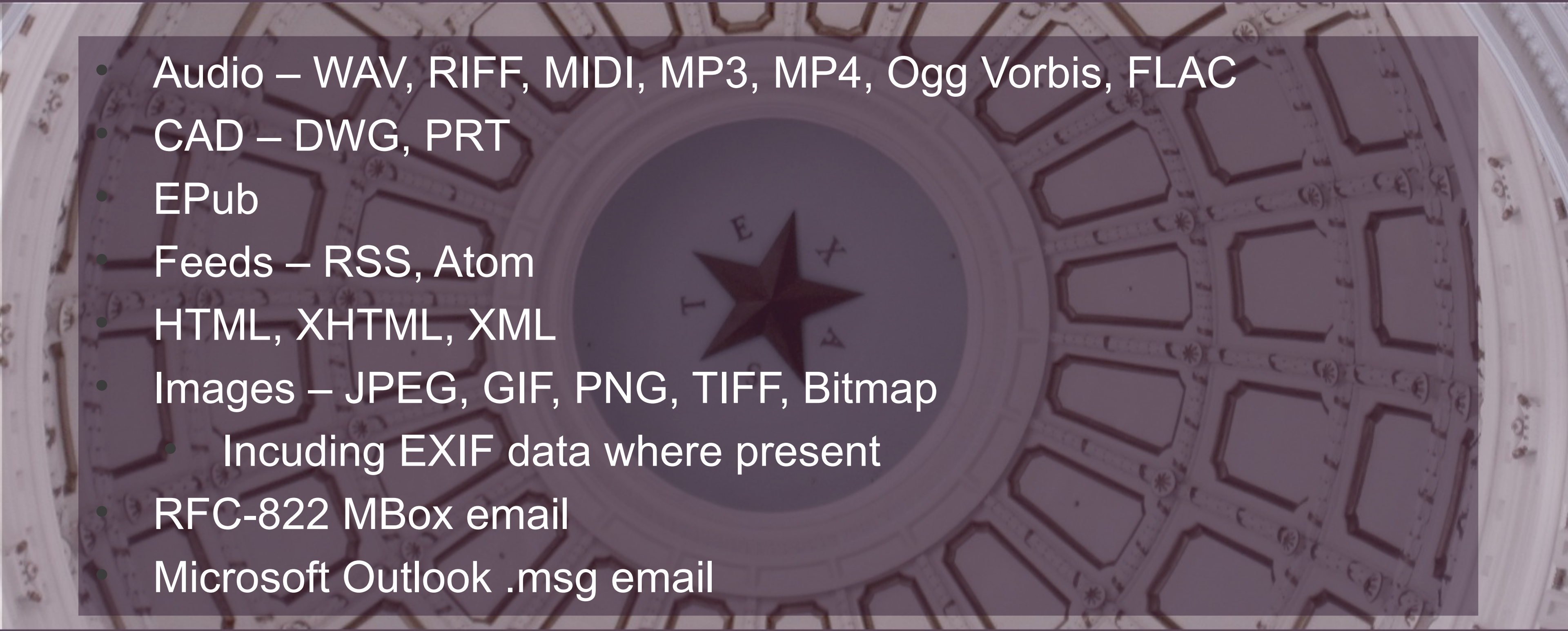
Sharing process

- Identify upstream projects (mostly Apache Tika + POI)
- Get the latest versions of the code
- Compared Alfresco code to upstream, and identify areas where Alfresco did more / upstream didn't handle
- Wrote unit tests for things Alfresco did better, to avoid regressions after the push upstream
- Identified which bits of upstream would be improved, and what bits would be whole new features
- Worked with upstream projects, shared ideas for enhancements, checked hadn't missed things

Sharing process continued

- Produced patches, submitted to the Apache projects
- Get feedback and improvements on patches
- Gained trust of communities, granted commit rights
-
- Once most things upstream, update Tika and POI versions used in Alfresco, check everything worked
- Wrote Tika wrappers for Alfresco
- Converted Alfresco code to call Tika
- Used unit tests to ensure no lost functionality
- Enabled other formats via Tika

Alfresco 4.2 - Formats

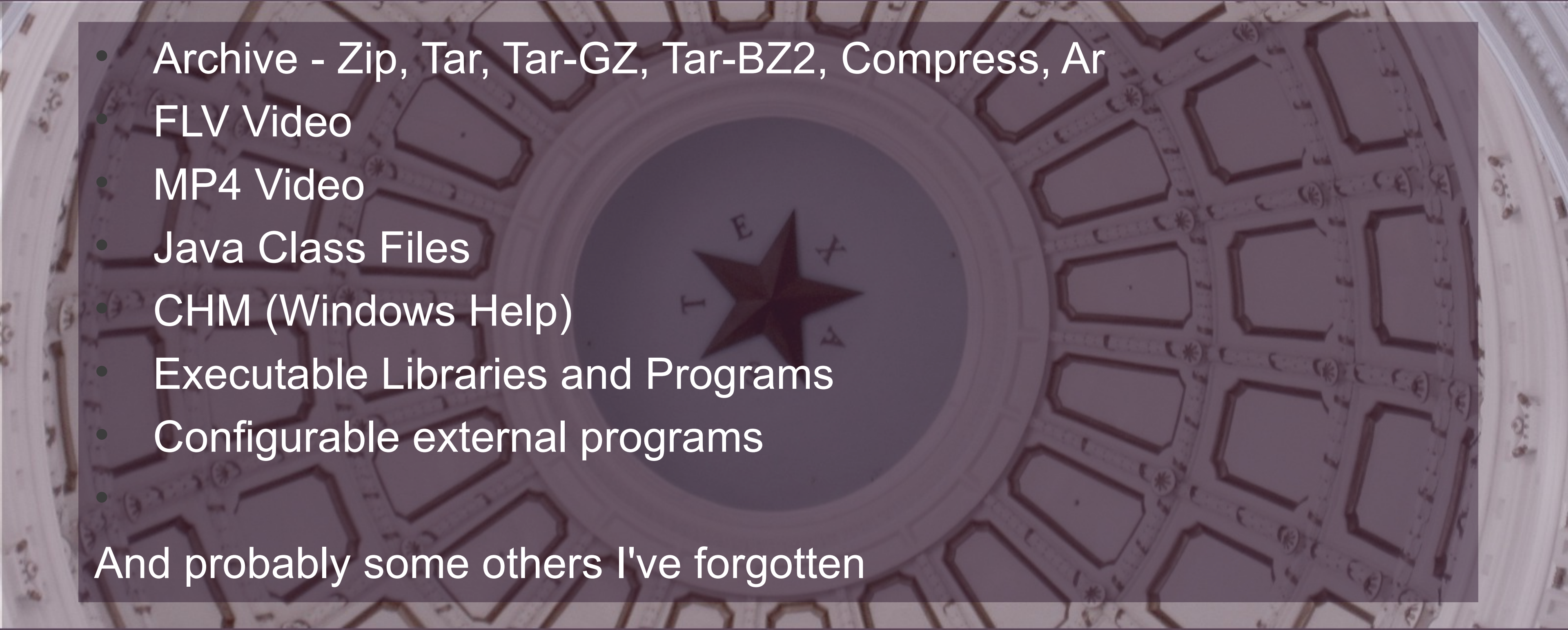


- Audio – WAV, RIFF, MIDI, MP3, MP4, Ogg Vorbis, FLAC
- CAD – DWG, PRT
- EPub
- Feeds – RSS, Atom
- HTML, XHTML, XML
- Images – JPEG, GIF, PNG, TIFF, Bitmap
  - Incuding EXIF data where present
- RFC-822 MBox email
- Microsoft Outlook .msg email

Alfresco 4.2 - Formats

- IWorks (Keynote, Pages, Numbers)
- Microsoft Office (Binary) – Word, PowerPoint, Excel, Visio, Publisher, Works
- Microsoft Office (OOXML) – Word, PowerPoint, Excel
- Open Document Format (OpenOffice)
- PDF
- RTF
- Plain Text
- Scientific Data – CDF, HDF

Alfresco 4.2 - Formats



- Archive - Zip, Tar, Tar-GZ, Tar-BZ2, Compress, Ar
- FLV Video
- MP4 Video
- Java Class Files
- CHM (Windows Help)
- Executable Libraries and Programs
- Configurable external programs
-

And probably some others I've forgotten

Alfresco 5.0 – New Formats

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Thus far, Alfresco 5.0 Enterprice final got the following new formats, on release, at no extra effort beyond upgrading Apache Tika:

- Archive - 7z
- Audio – Ogg Opus and Speex
- Video – Ogg Theora
- Image – Tesseract OCR support
- Source Code
- Email – Outlook PST
- Font – Adobe Font Metrics

And a few more to come in Alfresco 5.1!

Case Study 2:

Alfresco and Apache Chemistry

CMIS (OASIS Standard)

- CMIS – Content Management Interoperability Services
- Standard for talking to content repositories
- Provides a standard way to login, navigate, search, upload, version, delete, change permissions, alter properties, set relationships, query etc
- Supported by a wide range of content repositories
- Adobe, IBM, Microsoft, Alfresco, SAP, EMC, HP, Liferay, Nuxeo, OpenText, Oracle, and some others
- CMIS 1.0 released in 2010
- CMIS 1.1 released in late 2012

First Alfresco Support

- Alfresco was involved in CMIS from an early stage
- First Alfresco CMIS support was added before the CMIS 1.0 spec was completed, and was used to feed back on the proposed standard
- First support was developed internally, took quite a while, and turned out to have some issues
- Desire for a pure-Java server implementation, which would be more rhobust and easier to test + validate
- Desire for a CMIS client for a few different platforms
- Desire not to have to do it all in-house

Two Rival Camps

- Alfresco, OpenText and SAP started working on an open source Java client and server as OpenCMIS
- Nuxeo, Adobe and friends started on Apache Chemistry
- Both had strengths and weaknesses
- Quite different development and governance approaches
- Some lack of trust between camps
- Quite a lot of misunderstandings about what Apache and the Apache Way was, and worry about a loss of control or direction, from some in OpenCMIS
- Then an idea to contribute OpenCMIS as another project

The Joining Together

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- Lots of debate on mailing lists and in private
- Eventually a get-together in Munich, coupled with lots of feedback to the mailing list, and rattification there
- Outcome was a merged project, Apache Chemistry, which combined the best of both
- Lots of activity, lead quite quickly to a CMIS-1.0 compatible test server, server framework, client and test suite
- Took some work to implement this new server into Alfresco, but it proved better than the in-house one
- Initially only a handful of companies used it, rest tested

Going Forward

- Alfresco received lots of bug fixes “for free” just from upgrading the OpenCMIS libraries
- More companies started basing their CMIS implementations on Apache Chemistry, having realised that it was both high quality and already available
- Virtuous circle of enhancements and fixes
- CMIS 1.1 support added to Apache Chemistry mostly by SAP, with help from others
- Adding CMIS 1.1 support to Alfresco took a tiny fraction of the time CMIS 1.0 did, due to Chemistry support

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Case Study 3: Alfresco and Activiti

BPMN-2.0 Workflows

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- BPMN – Business Process Modeling Notation
- Way of describing business processes (workflows), which can be displayed visually, but also executed
- Covers most of the key elements of a workflow
- Ideally can be created by business analysts
- Big step on from previous BPMN versions is that the format is executable – the same thing that the analyst creates / changes is what gets run
- Industry standard for doing this (previously each engine had its own way of doing that)

Alfresco and Workflow

- Alfresco Workflows were based on jBPM
- In 2010, jBMP was LGPL and owned by Redhat
- Alfresco were finding some problems with jBPM that were hard to fix, and seemed to be architectural
- jBPM core devs were interested in a re-write, Redhat less so
- Alfresco was trying to reduce the number of copyleft dependencies in the codebase, jBMP was a big part
- Alfresco had moved from Hibernate to iBatis, and jBMP remainging with Hibernate was making development + support harder

The Birth of Activiti

- Alfresco hired two of the core jBPM developers, Tom Baeyens and Joram Barrez, plus some others
- Charged with developing an Apache licensed, open source implementation of BPMN 2.0
- Alfresco was the be the “launch customer”, but being open source anyone can (and hopefully would) use it too
- Needed some changes to Alfresco to make the the Workflow APIs (already pluggable) work well with Activiti as well as jBMP
- Aim was for Activiti to be the default engine, and more powerful / richer than jBPM was

ASL v2, but not ASF

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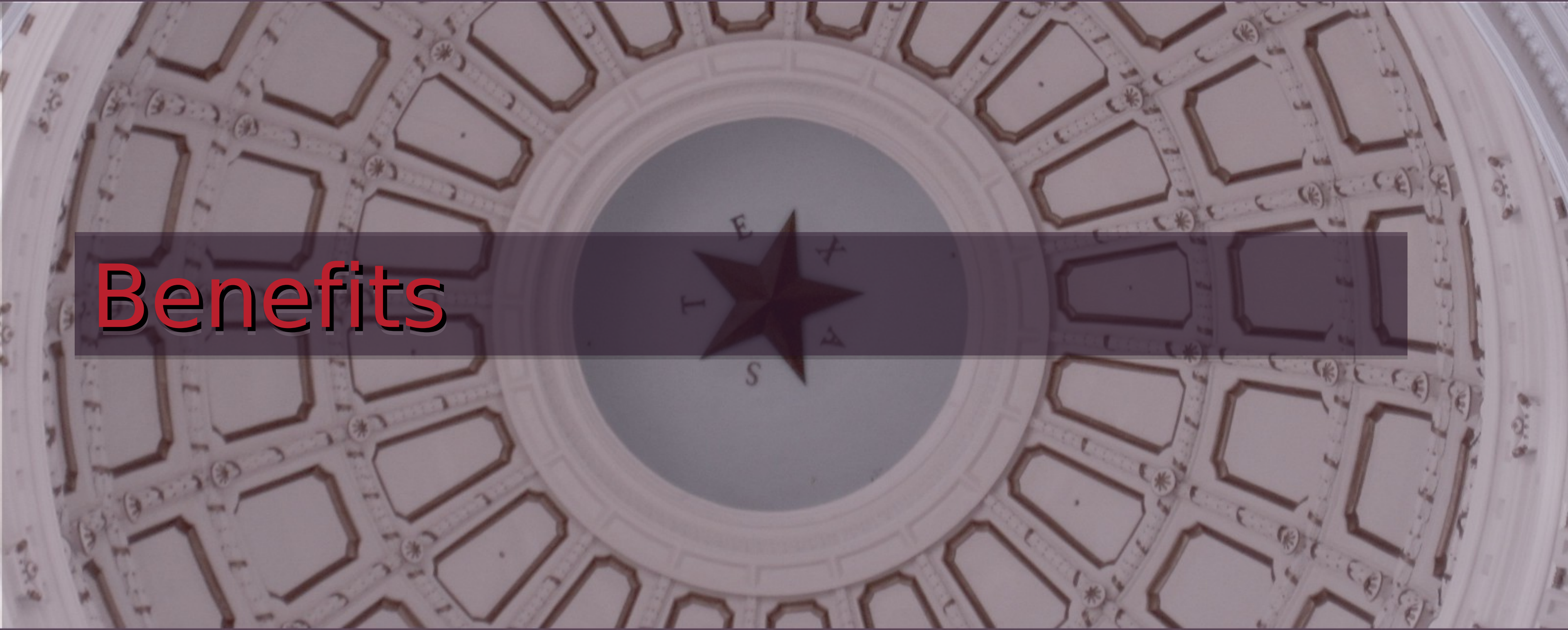
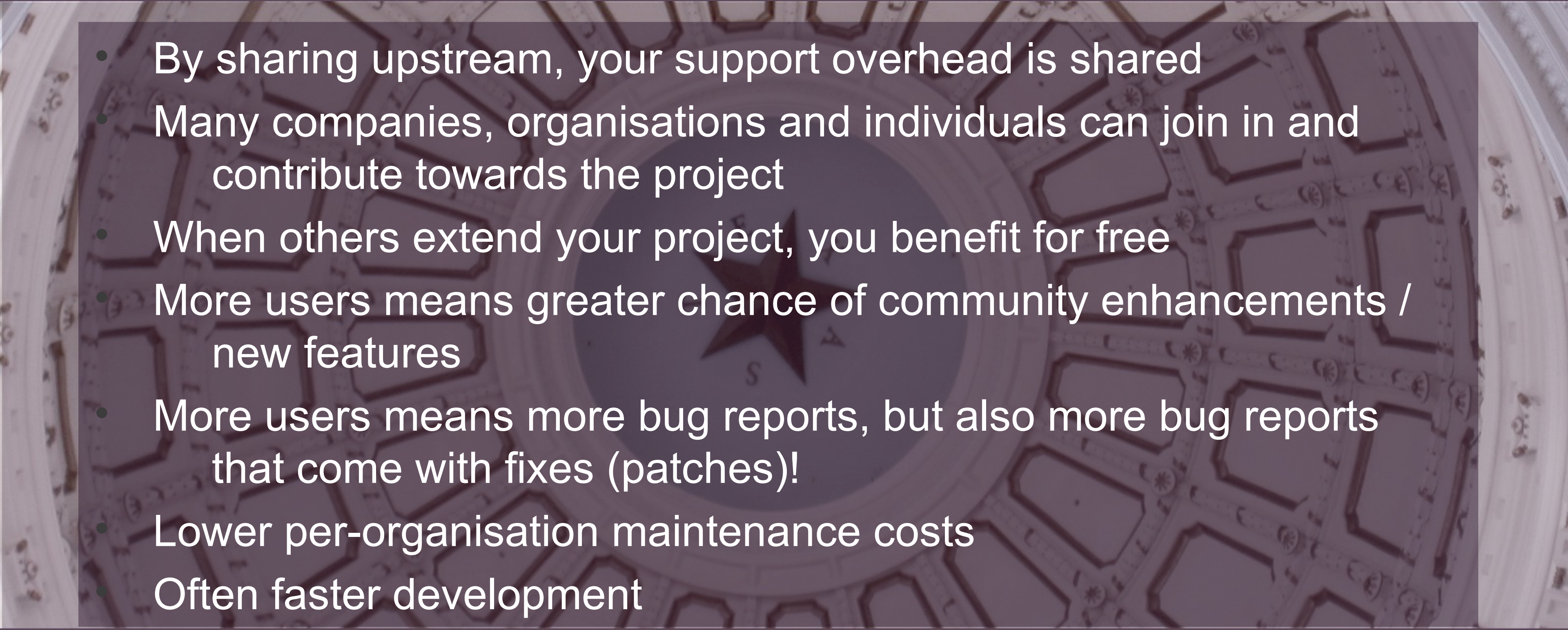
- License was picked as Apache License v2
- However, after lots of internal debate, decision was made not to submit the project to the Apache Incubator
- Alfresco wanted their next release to ship with Activiti, meant they had strong pressures to hit a ship date
- Initial feature set largely dominated by what was needed for Alfresco, other features were added but mostly after the first release
- Tom Baeyens is a “BPM-God”, really knows his stuff, but after Redhat frustrations wanted to drive it
- Initially not good Incubator fit, later why change?



Benefits

Shared Maintenance



- By sharing upstream, your support overhead is shared
- Many companies, organisations and individuals can join in and contribute towards the project
- When others extend your project, you benefit for free
- More users means greater chance of community enhancements / new features
- More users means more bug reports, but also more bug reports that come with fixes (patches)!
- Lower per-organisation maintenance costs
- Often faster development

Better Bug Reports

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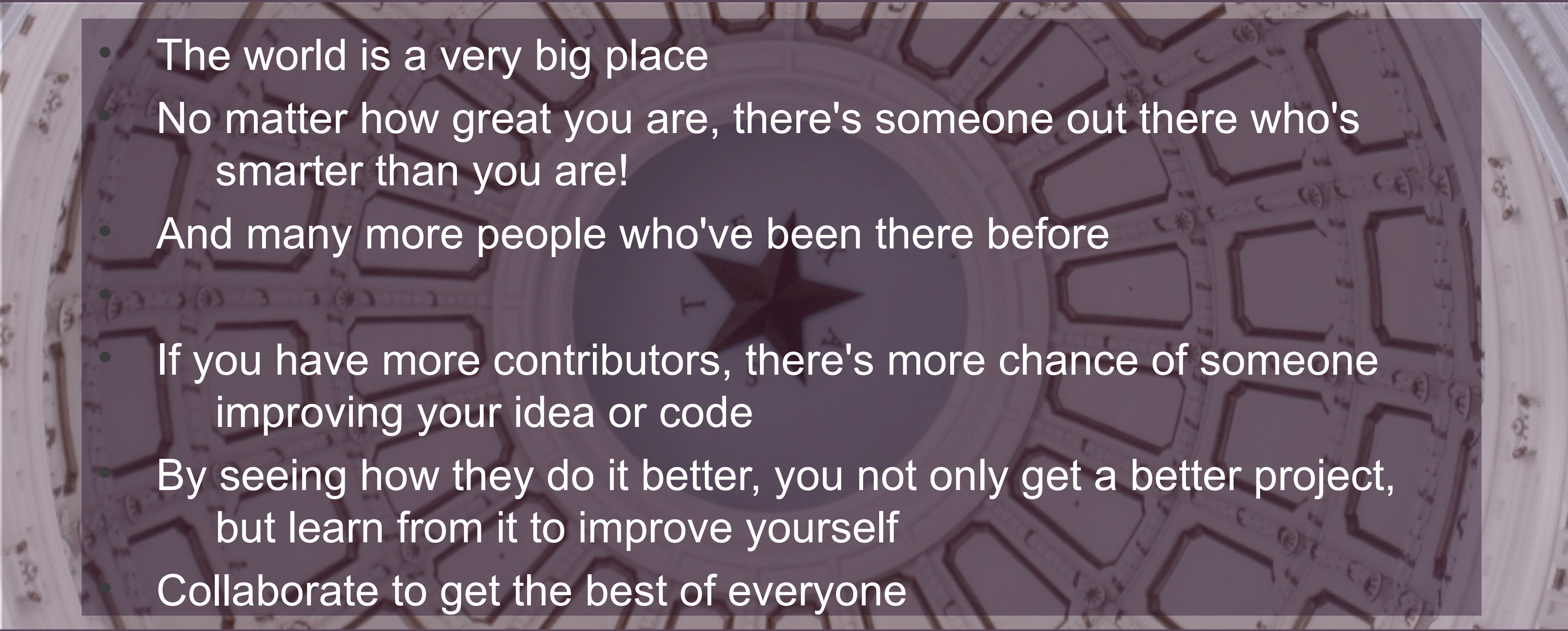
- People familiar with Open Source often know how to report bugs better
- By sharing your code, more people can use it, so there's a wider pool of people to test and report on it
- “I have found a bug, but I can't share the details of it” is less common, and more chances of a duplicate which can
- More likely that another user can come along and fill in the details of existing bugs
- If you're open and other companies are joining in, greater chance someone will have dedicated testers!

New Ideas, New Features

- When other companies feel they can base their business on your project, then they can dedicate more resources
- When individuals feel they have a say, they're more likely to spend their time working on it
- More developers means more ideas for fixing problems, enhancing exisiting code, and adding new things
- When contributions are felt to be welomed and appreciated, more likely for people to share back
- Can be small changes over time, or can be large new features, all for (almost) free!

Learning from the best



- The world is a very big place
- No matter how great you are, there's someone out there who's smarter than you are!
- And many more people who've been there before
- If you have more contributors, there's more chance of someone improving your idea or code
- By seeing how they do it better, you not only get a better project, but learn from it to improve yourself
- Collaborate to get the best of everyone

Diverse Users and Devs

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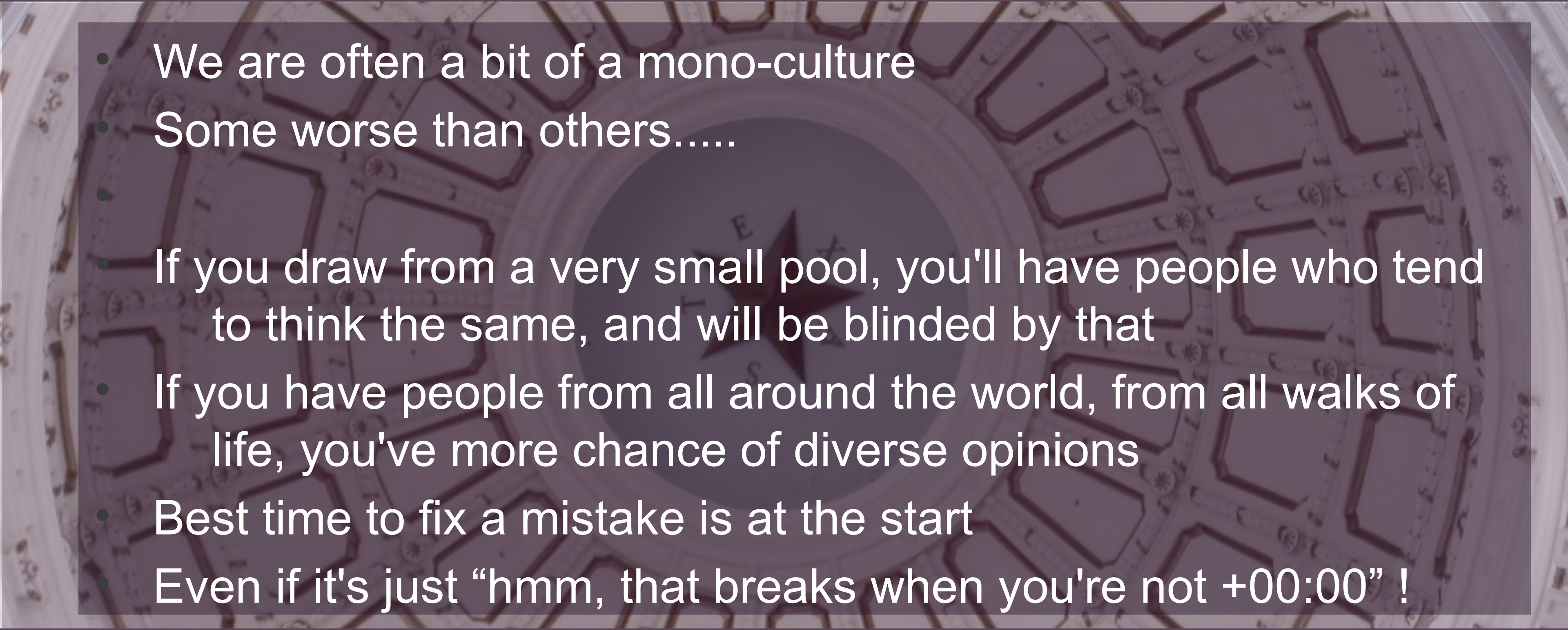

- We are often a bit of a mono-culture
- Some worse than others.....
-
- If you draw from a very small pool, you'll have people who tend to think the same, and will be blinded by that
- If you have people from all around the world, from all walks of life, you've more chance of diverse opinions
- Best time to fix a mistake is at the start
- Even if it's just “hmm, that breaks when you're not +00:00” !

Community and Goodwill

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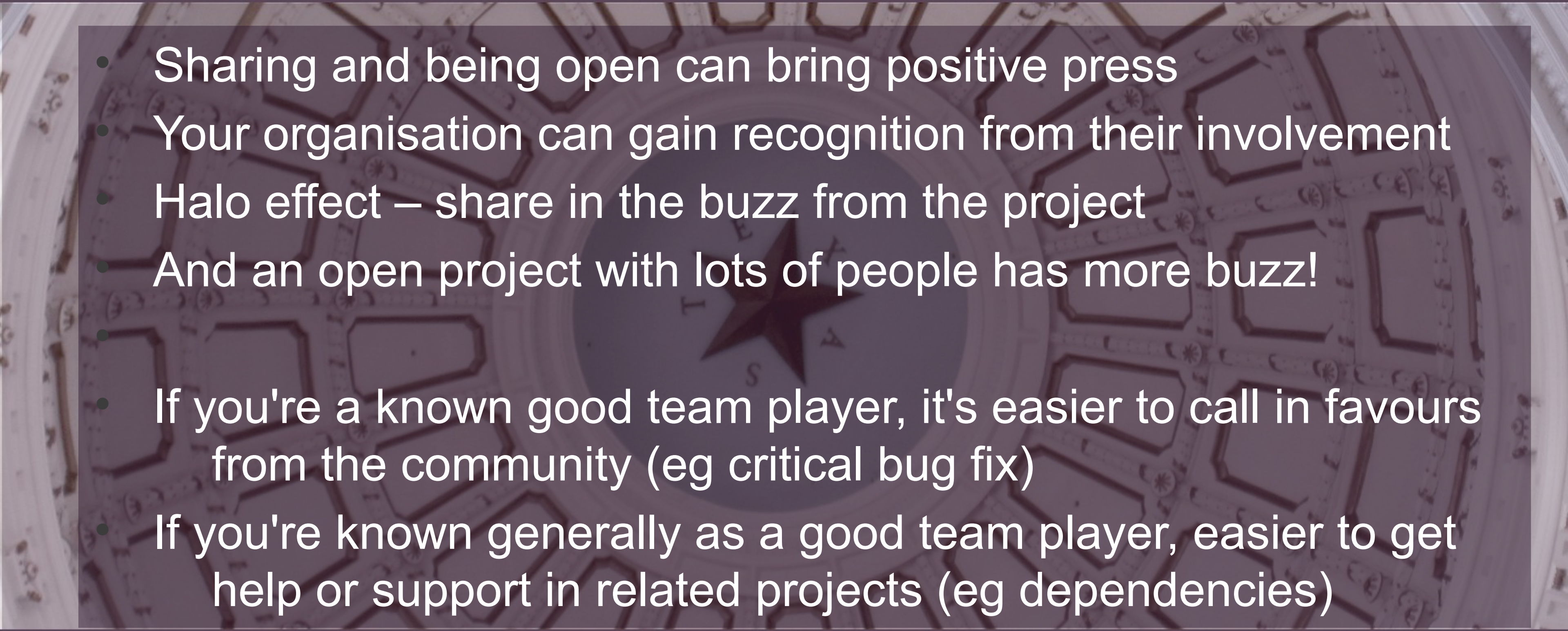
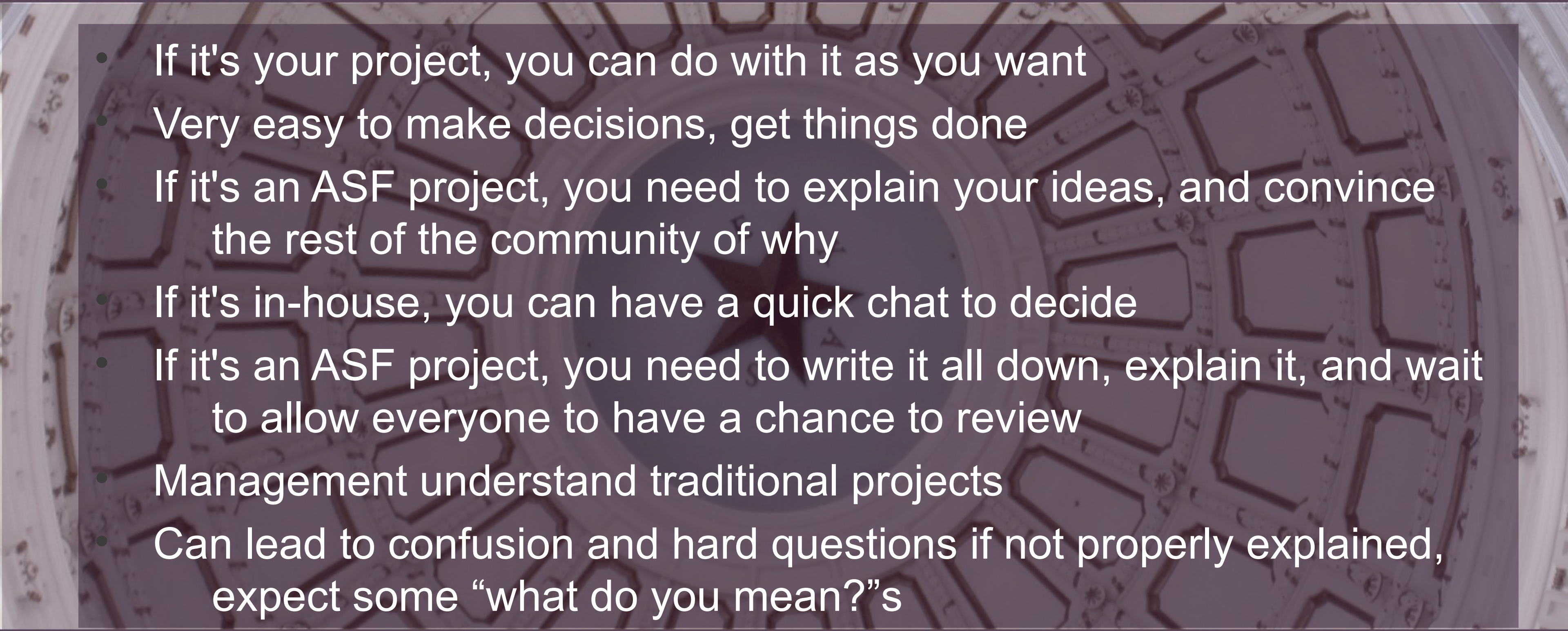


- Sharing and being open can bring positive press
- Your organisation can gain recognition from their involvement
- Halo effect – share in the buzz from the project
- And an open project with lots of people has more buzz!
- If you're a known good team player, it's easier to call in favours from the community (eg critical bug fix)
- If you're known generally as a good team player, easier to get help or support in related projects (eg dependencies)

Downsides

Lack of Control



- If it's your project, you can do with it as you want
- Very easy to make decisions, get things done
- If it's an ASF project, you need to explain your ideas, and convince the rest of the community of why
- If it's in-house, you can have a quick chat to decide
- If it's an ASF project, you need to write it all down, explain it, and wait to allow everyone to have a chance to review
- Management understand traditional projects
- Can lead to confusion and hard questions if not properly explained, expect some “what do you mean?”s

Release dates

- If it's your project, you have full control (and responsibility) about “done”, and the associated release dates
- If it's an ASF project, it's a community decision
- You can't “demand” that someone else fixes a bug
- If the community is all excited and working on a new feature, it may not be the right time for a stable release
- If you're on a different cycle to many other contributors, expect to still have to do much of the “boring bits”
- Need to get the community to share release vision

Direction / Features

- If it's your project, you decide what's in, you direct the developers, off they go (or fail trying....)
- If it's an ASF project, you need to explain the idea to the community, and get their buy-in
- You may still then have to do most of the work on it – you can't force the volunteers to work on something!
- Your vision for where it should go may not match others
- Your “value add” might end up getting re-done by the community, and you can't stop that
- Can confuse management, who expect a different dynamic about getting new things in

Marketing & Branding

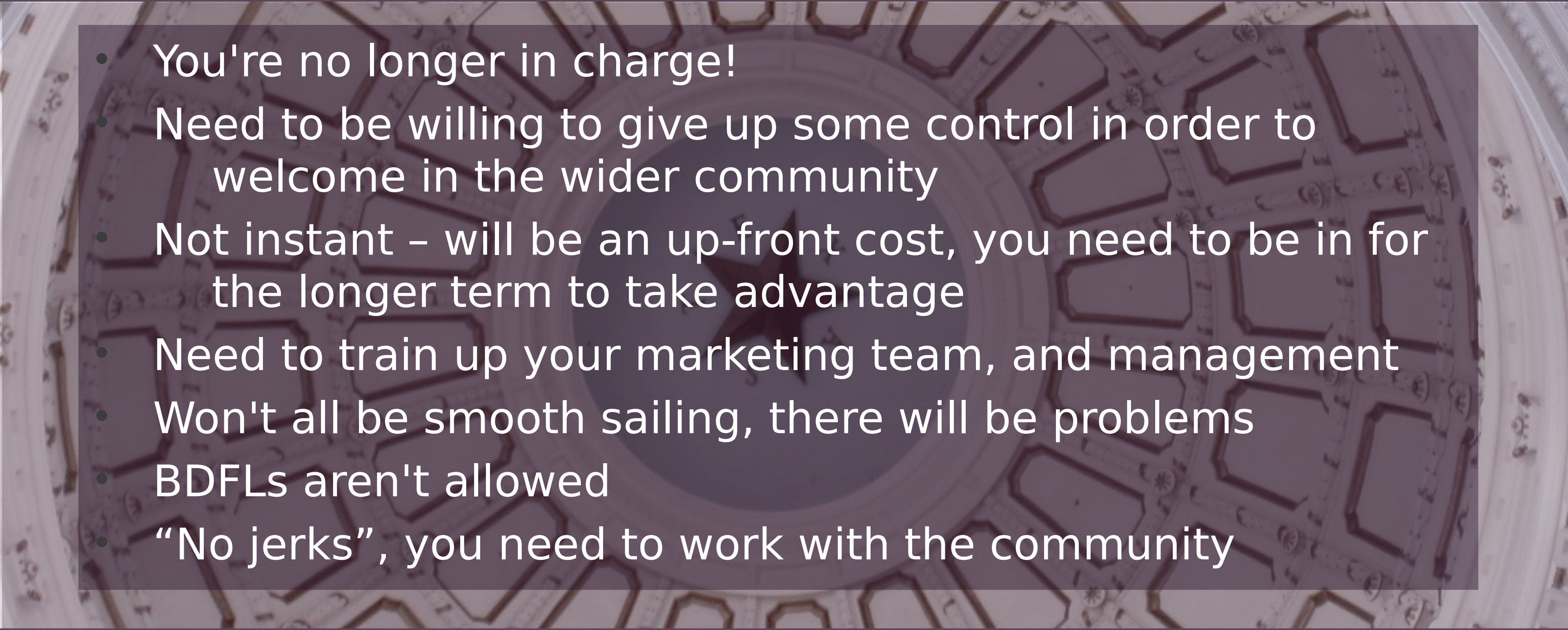
- If it's your project, you can brand it how you want, associate your company with it how you want
- ASF has trademark rules which apply, you mustn't confuse your product with the project
- Need to co-ordinate with the rest of the community on branding, press releases, conferences etc
- Can be hard to get agreement on these things, can be prone to bike-shedding if not careful
- Potentially big loss of control

In Summary

Why it's Good

- More involvement
- Better bug reports, wider testing
- Other companies (including competitors) much more willing to join in and share resources
- Learn from others, and collaborate with them to improve
- More diverse community can mean problems get spotted and fixed sooner (+cheaper)
- More opportunities from wider use
- New features and fixes “for free”

But not for everyone!



- You're no longer in charge!
- Need to be willing to give up some control in order to welcome in the wider community
- Not instant – will be an up-front cost, you need to be in for the longer term to take advantage
- Need to train up your marketing team, and management
- Won't all be smooth sailing, there will be problems
- BDFLs aren't allowed
- “No jerks”, you need to work with the community

Any Questions?

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