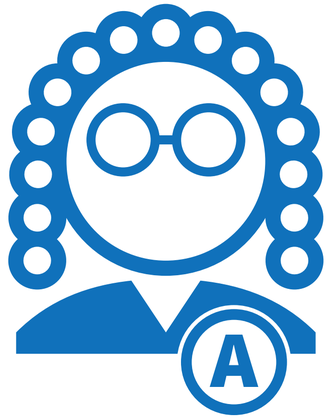
Automatic Case Distribution

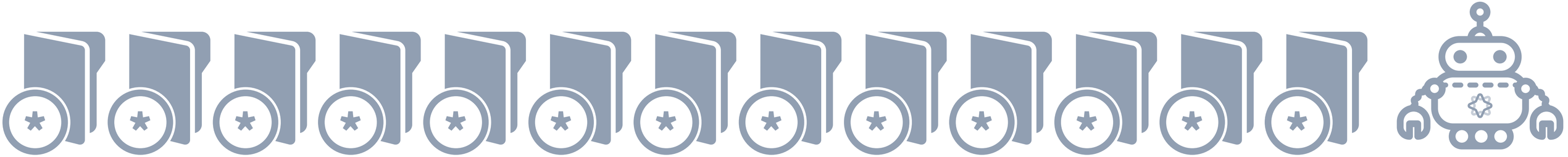
Balancing multiple dockets under the Appeals Modernization Act

Legacy

A judge requests cases

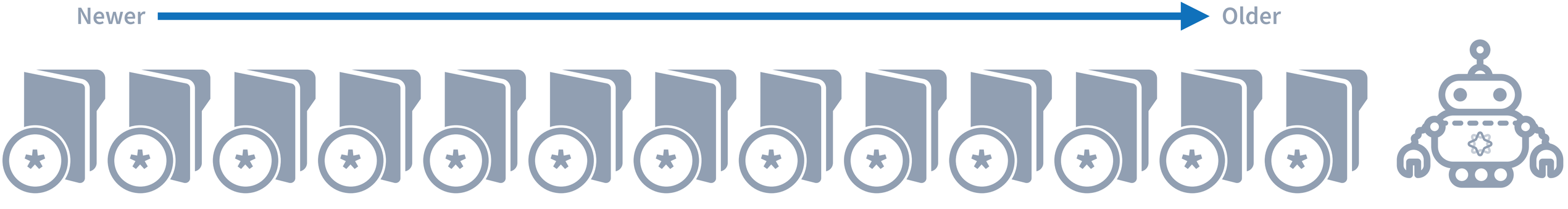
- They must have assigned all previously distributed cases to attorneys.
- They receive a batch of cases of a fixed size, the count of their attorneys multiplied by 5.
- They cannot request a custom number of cases.





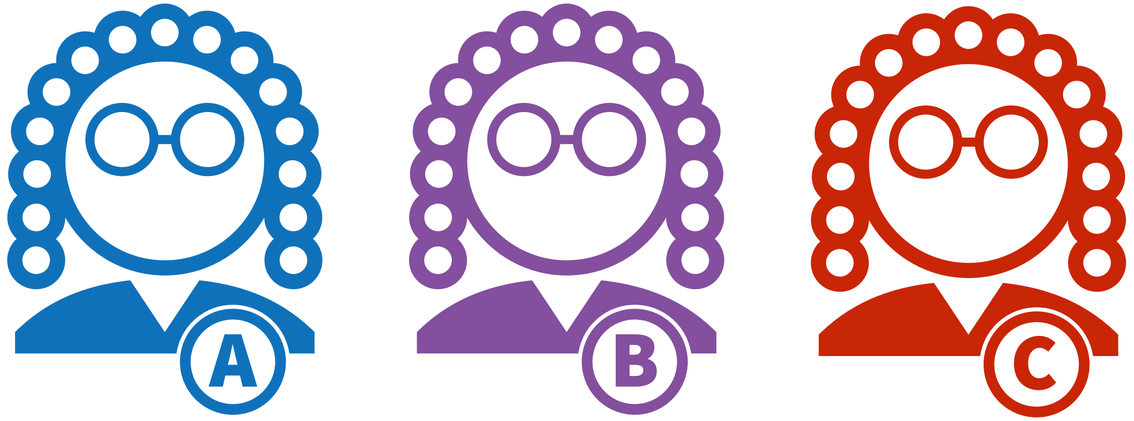
Cases are ordered by docket date

- We will only show cases that are ready for a decision. For example, cases that have not been activated at the Board or are waiting on an IHP will not be shown.



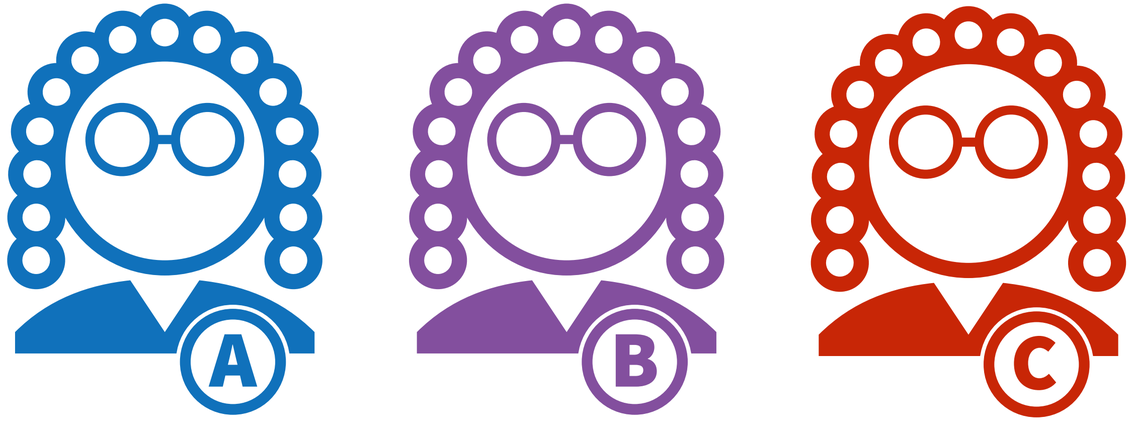
Some cases are tied to judges

- The others are genpop, and can be distributed to any judge.



If a judge leaves…

- …their cases do not become genpop. The cases must either go for a hearing with a different judge, or the Veteran must waive that right.



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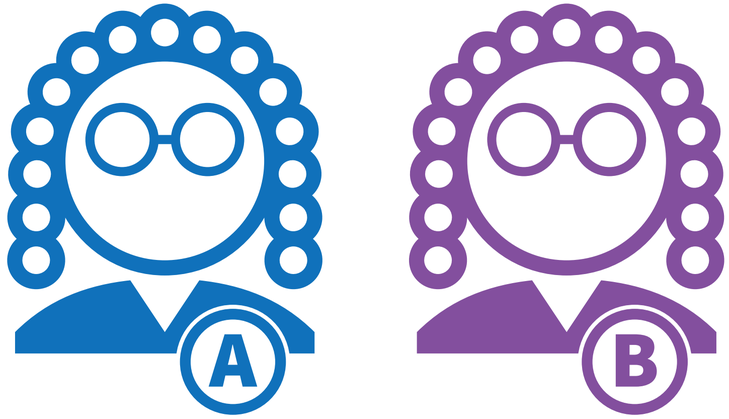


Reasons cases are tied to judges

- Legacy appeals are decided by the same judge who heard the hearing.
- AOD post-remands typically go to the same judge who issued the remand.

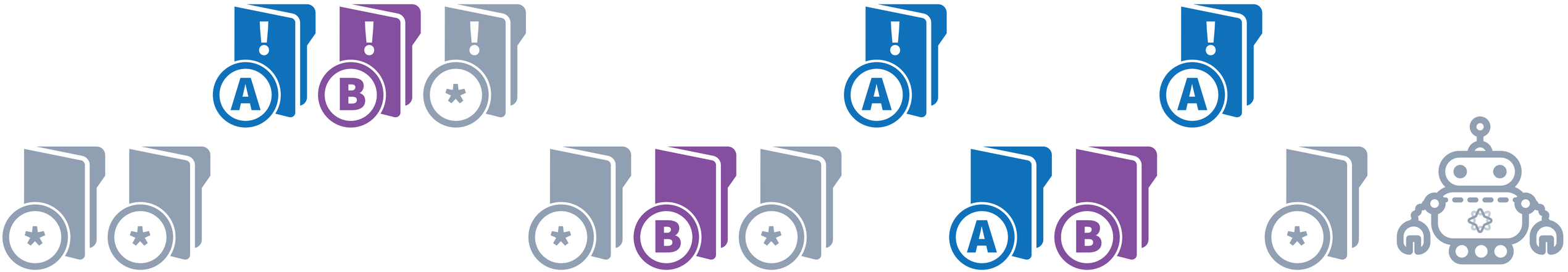
Some cases are prioritized

- This category includes both AOD and post-CAVC cases.

These cases are at the "front of the line"

- We treat this as a separate line, ordered first-in-first-out instead of by docket date. This ensures that priority cases continue to cycle.

- We do not differentiate between types of prioritization.



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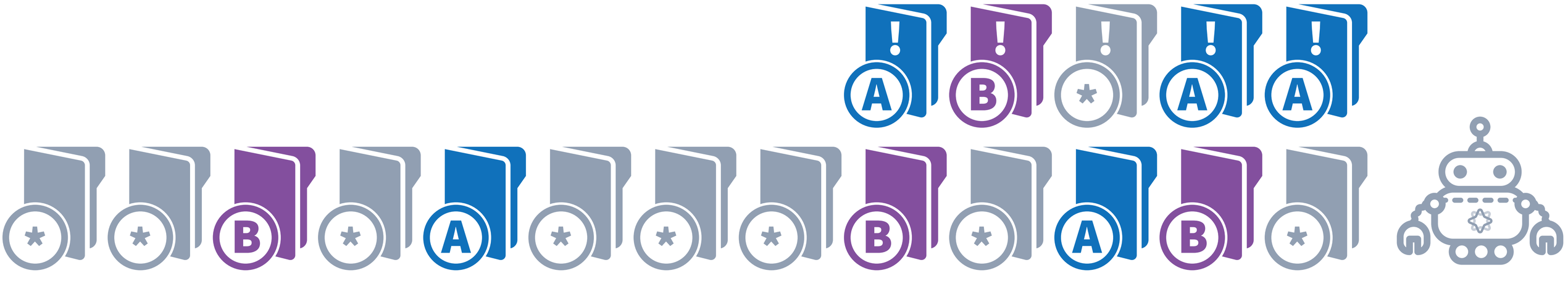
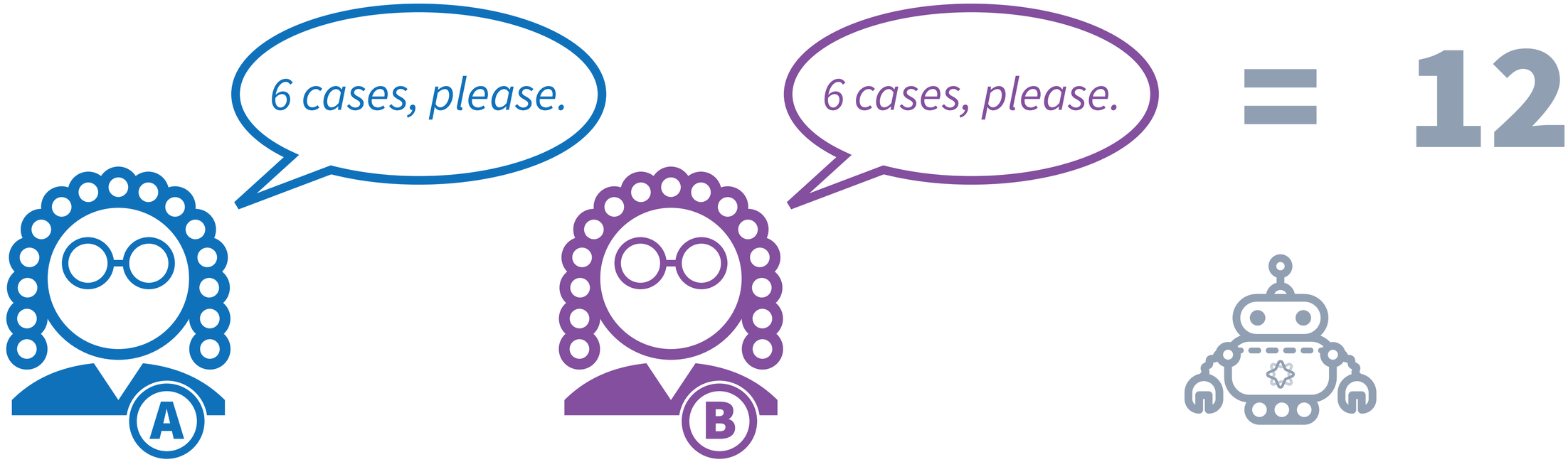


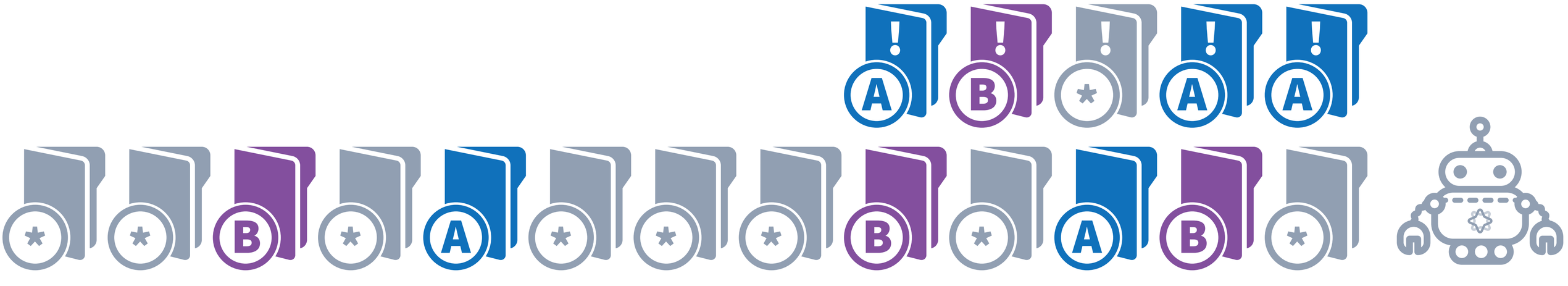
The docket margin

- Caseflow's first step is to calculate the "docket margin." This is the number of cases that would be distributed if every judge requested a distribution at the same time.



Applying the docket margin

- We select the first 12 cases, starting with the priority cases.



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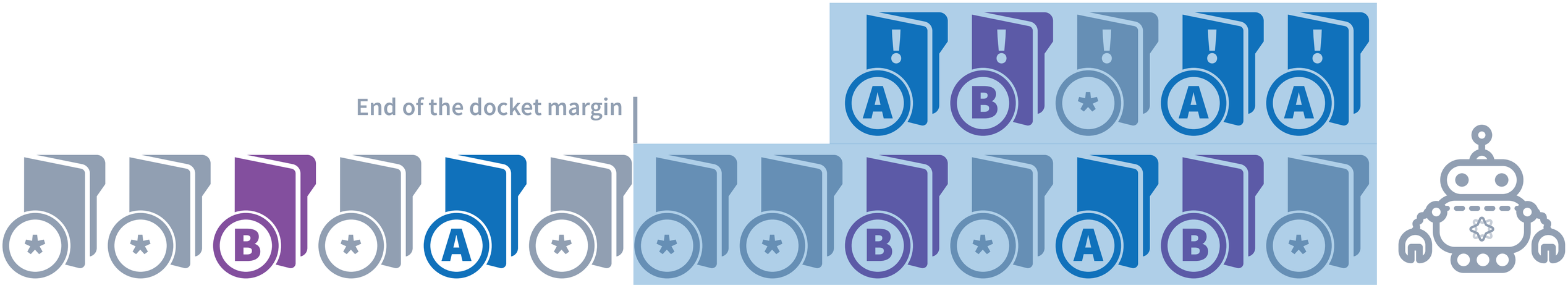
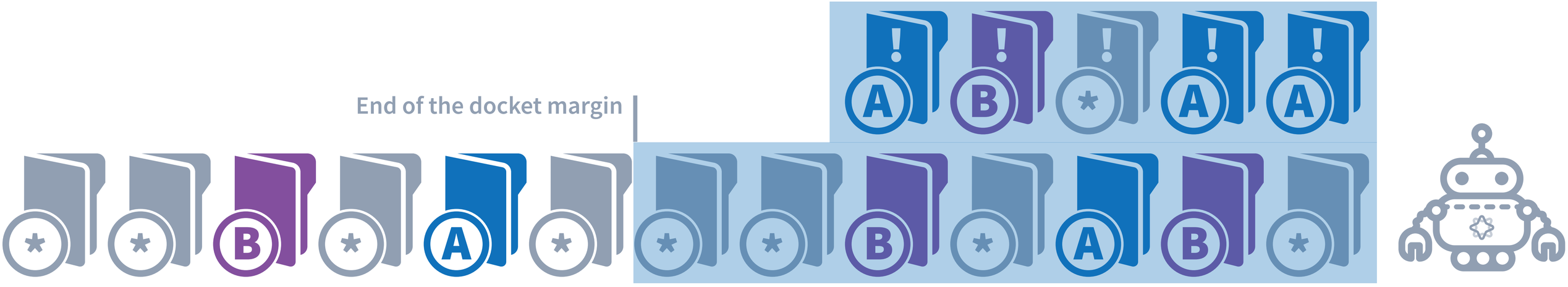


Priority target

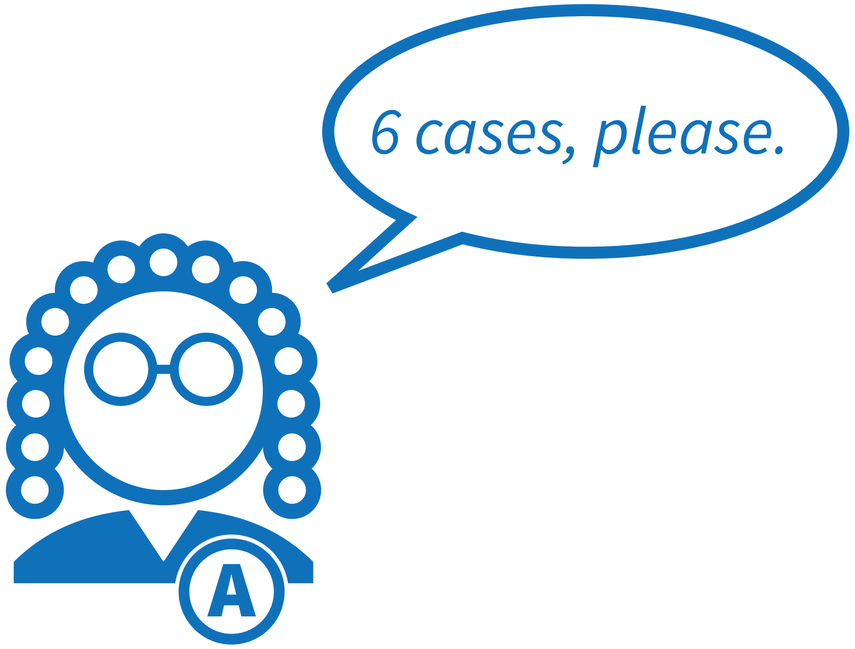
- 5 of the 12 cases are priority, so we set a "priority target," that is the target percentage of cases in each judge's distribution that should be priority.

$$\frac{5}{12} \cong 42\%$$



Applying the priority target

- Multiplying this by an individual judge's batch size, we arrive at the target number of priority cases for the judge. This number is always rounded up.



$$\times \frac{5}{12} = 2.5$$

Applying the priority target

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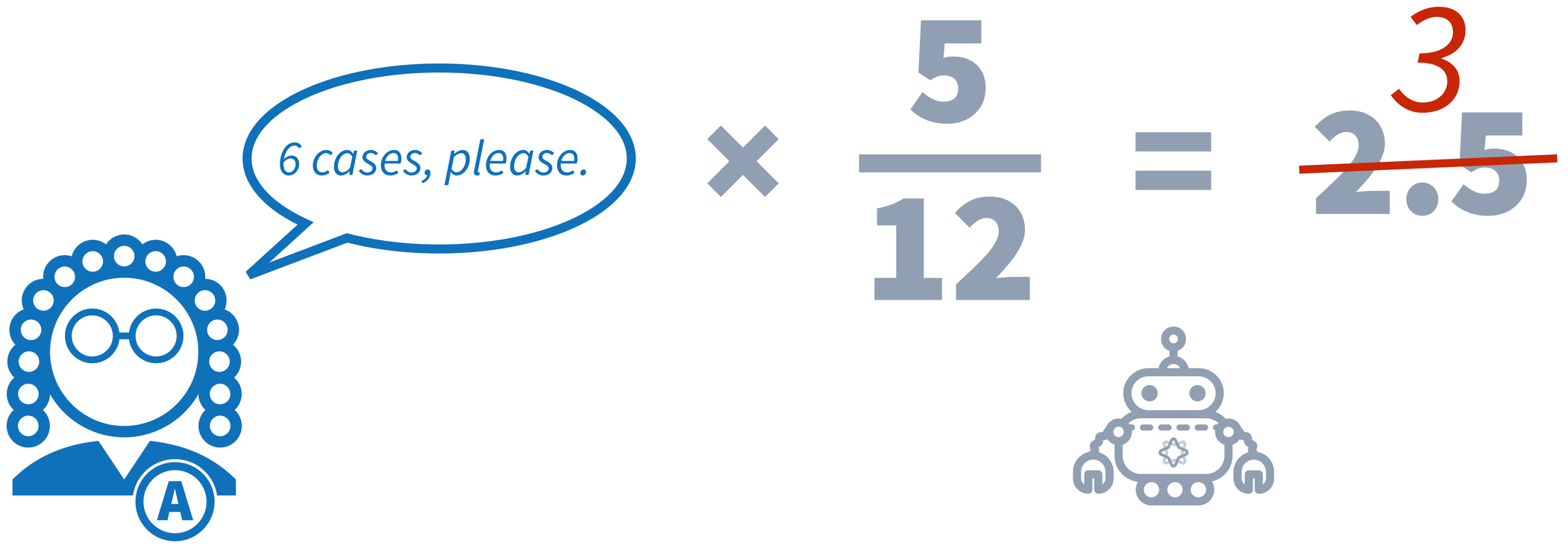
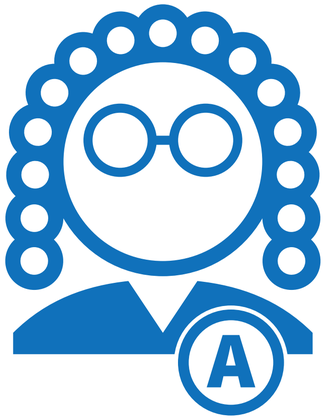


Distribute priority hearing cases

- We first distribute priority cases that are tied to the judge.
- Note that we do not yet distribute genpop cases.

priority cases remaining

Distribute priority hearing cases



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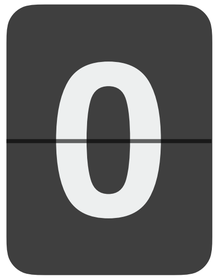

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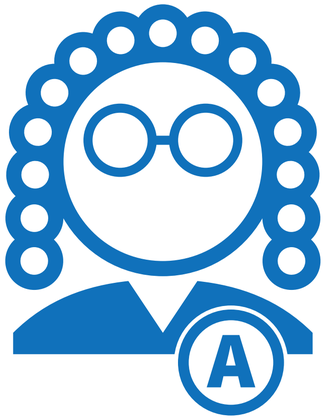
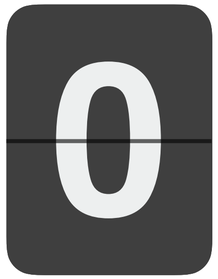


- If the number of priority cases tied to the judge exceeds the priority target, we will continue to distribute cases until we reach the limit of the batch size, as these cases cannot be worked by anyone else. This is not true of genpop cases.



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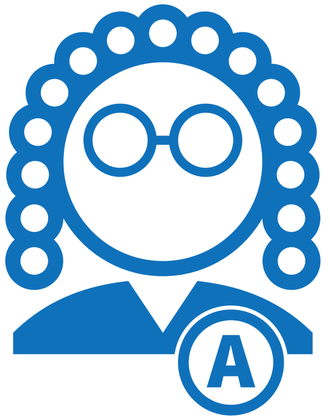

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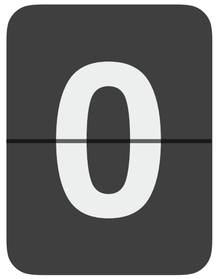
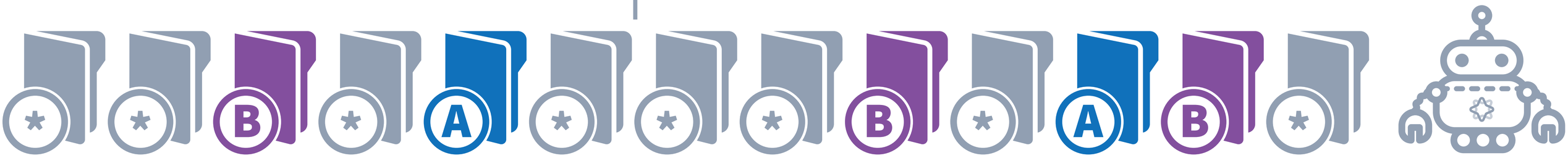


total cases remaining

Distribute nonpriority hearing cases

- We distribute cases that are tied to the judge, and are ahead of the docket margin.

End of the docket margin



3 total cases remaining

Distribute nonpriority hearing cases

- We distribute cases that are tied to the judge, and are ahead of the docket margin.

2 total cases remaining

Distribute priority genpop cases

- If the priority target has not been reached, we will then distribute additional genpop priority cases.

- It's okay if we don't have enough genpop cases to reach the target.

priority cases remaining

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priority cases remaining

Distribute other nonpriority cases

- Then we distribute cases in docket order, both genpop and tied to the judge, irrespective of the docket margin, up to the limit of the batch size.

total cases remaining

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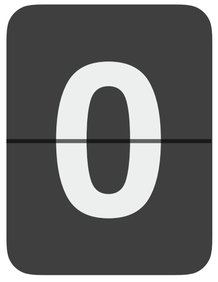

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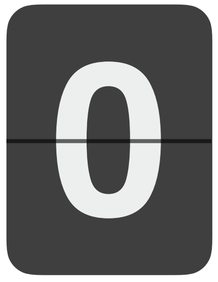


total cases remaining

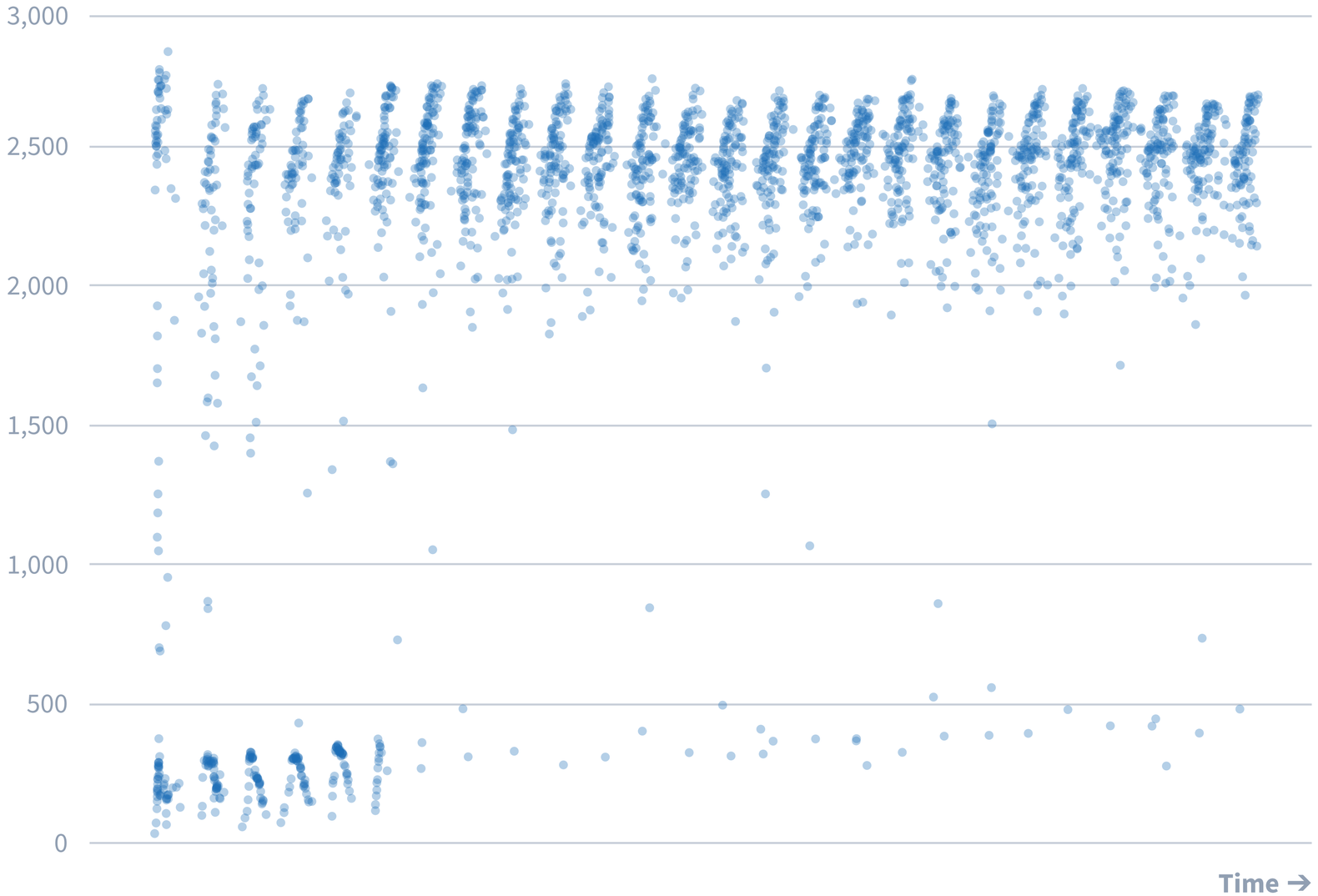
DES

Discrete Event Simulation

Measures

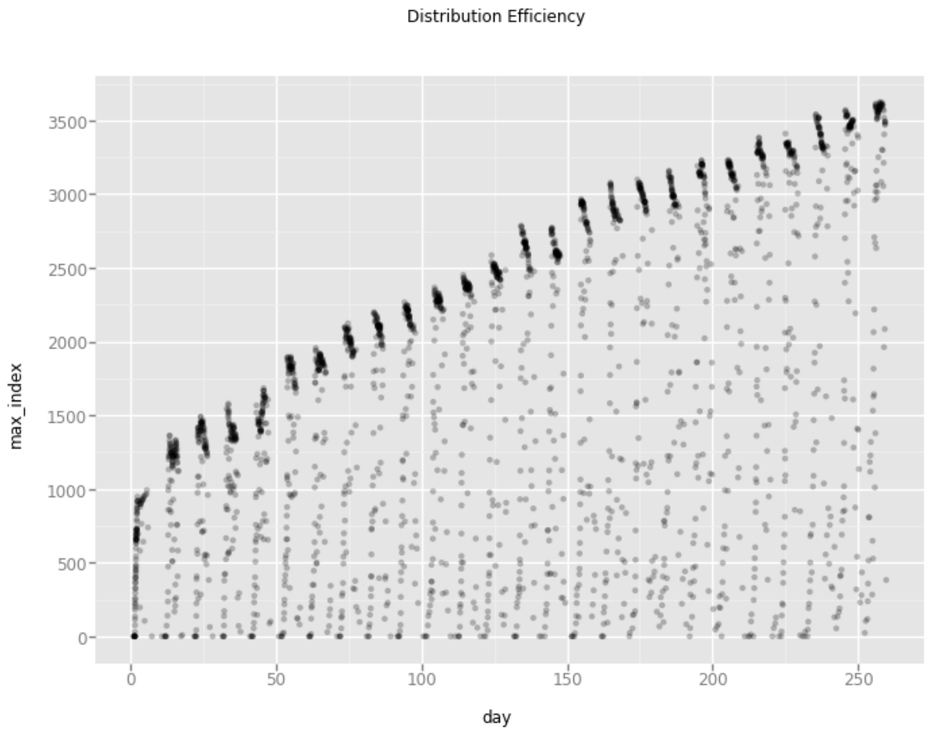
- **Docket efficiency:** How deep in the docket does Caseflow have to look to find enough cases?
- **Distribution diversity:** Are we balancing priority cases among judges?
- **Priority timeliness:** How long does Caseflow take to distribute a new priority case?
- **Priority pending:** How many priority cases are waiting to be distributed at any given time?

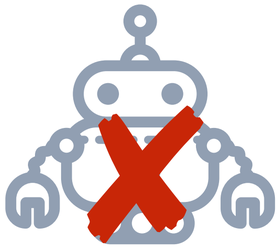
Example: Docket efficiency

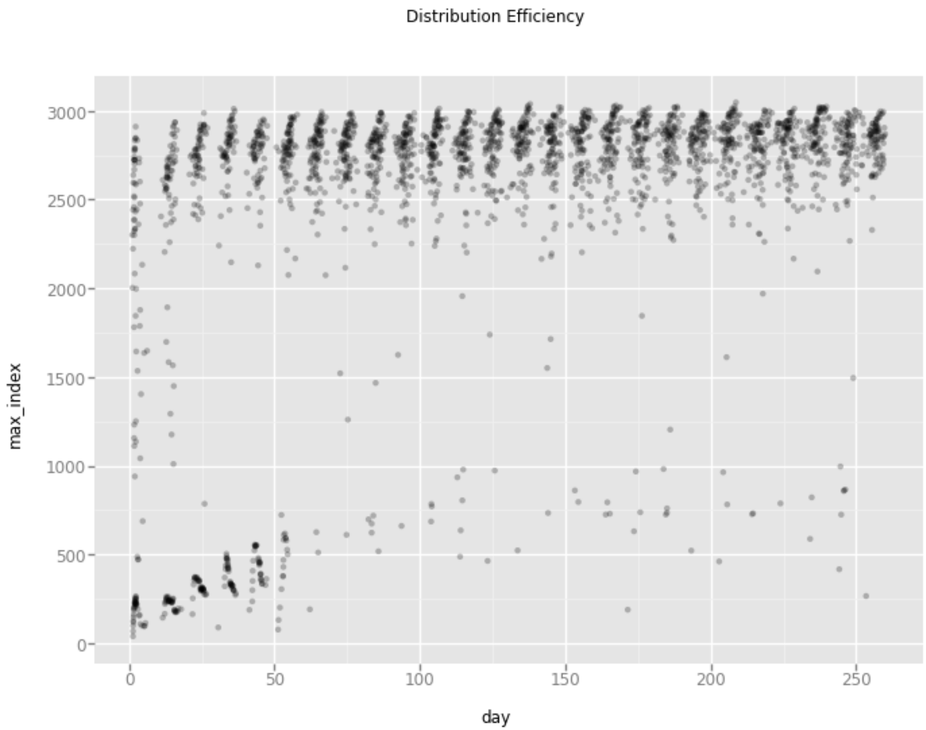


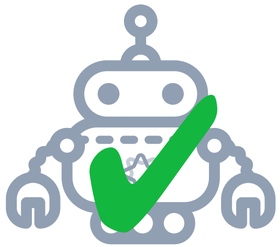
In simulations, Caseflow doesn't ever need to look more than 3,000 cases deep.

Experimentation









AMA

Multiple dockets

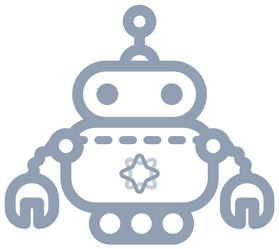
- The Board now maintains multiple dockets.

Direct review

New evidence

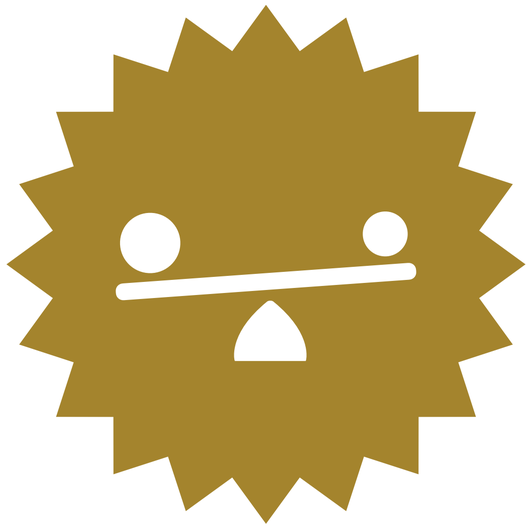
Hearing

Legacy

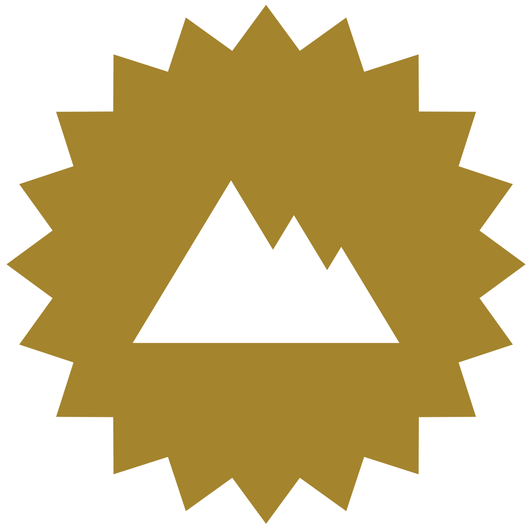


Three goals

Direct review time goals



Other dockets balanced proportionately



Completing legacy cases

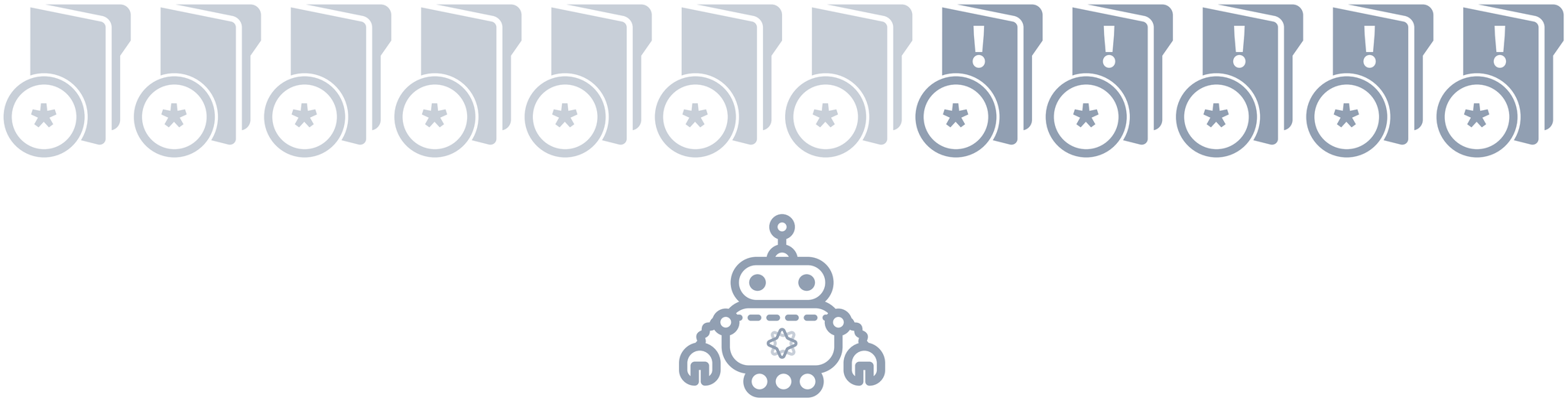
Docket proportion targets

- Just like we do with priority cases, we create targets for each of the four dockets, that is the target percentage of non-priority cases in each judge's distribution that should come from a given docket.

- Targets only apply to non-priority cases. We treat priority cases from any docket as being in their own first-in-first-out line, and effectively do not differentiate by the originating docket.

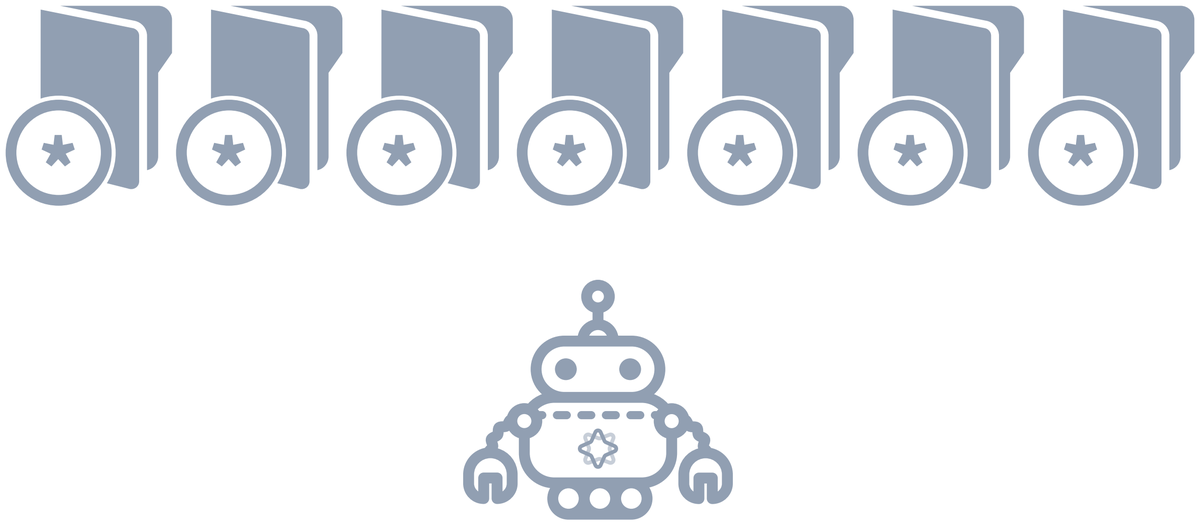
Docket proportion targets

- As before, we start by finding the docket margin and the priority target, now looking at ready cases on any docket.



Docket proportion targets

- Next we set aside the priority cases, and just look at the remaining cases (the "docket margin net of priority"). Our goal is to determine which dockets these 7 cases should be drawn from.



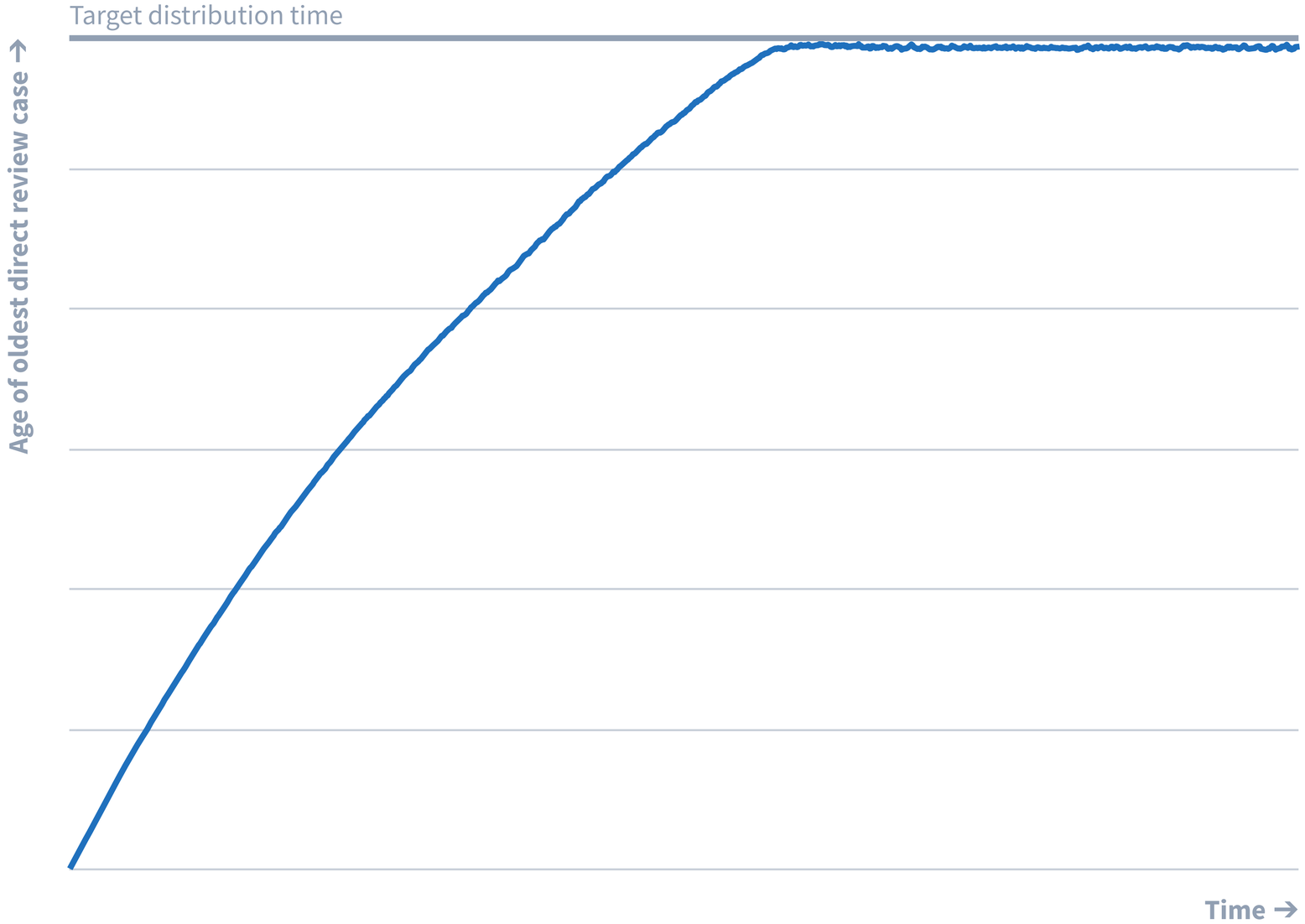
Direct review proportion

- Unlike the other dockets, the number of cases distributed from the direct review docket is not based on the number of cases on the docket. Instead, it is based on a 365-day timeliness goal.

- One approach would be to initially work no direct review cases, only starting as the end of the year approaches.

- Instead, we want to start working cases immediately, but less than is needed to keep pace with the number that are arriving. We then gradually ramp up to the number needed to keep pace and maintain the goal.

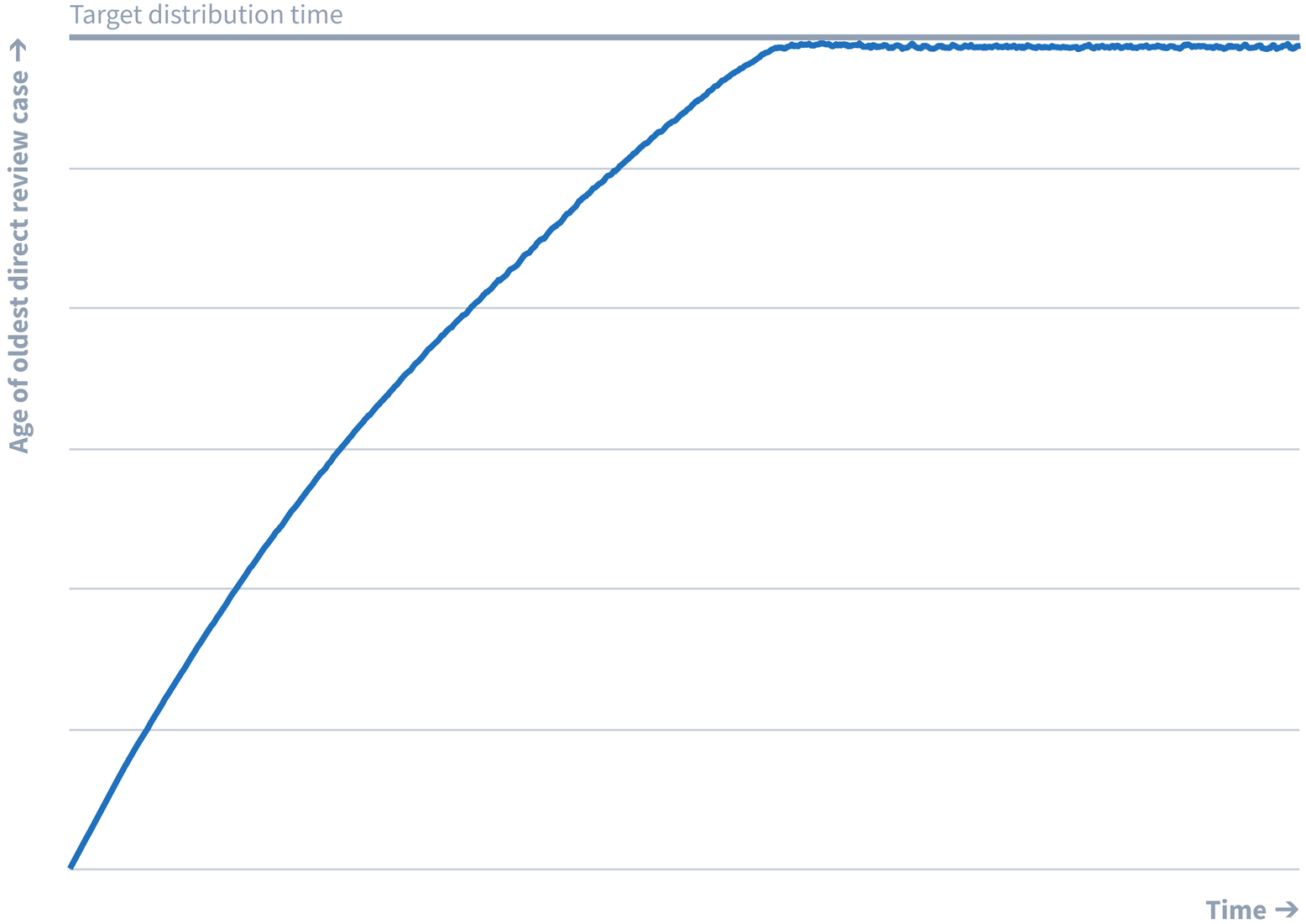
What we want to see



The age of the oldest direct review case curves toward the target distribution time.

The graph shown is from an actual simulation testing Caseflow.

What we want to see



Let's start with this part of the graph, the steady state.

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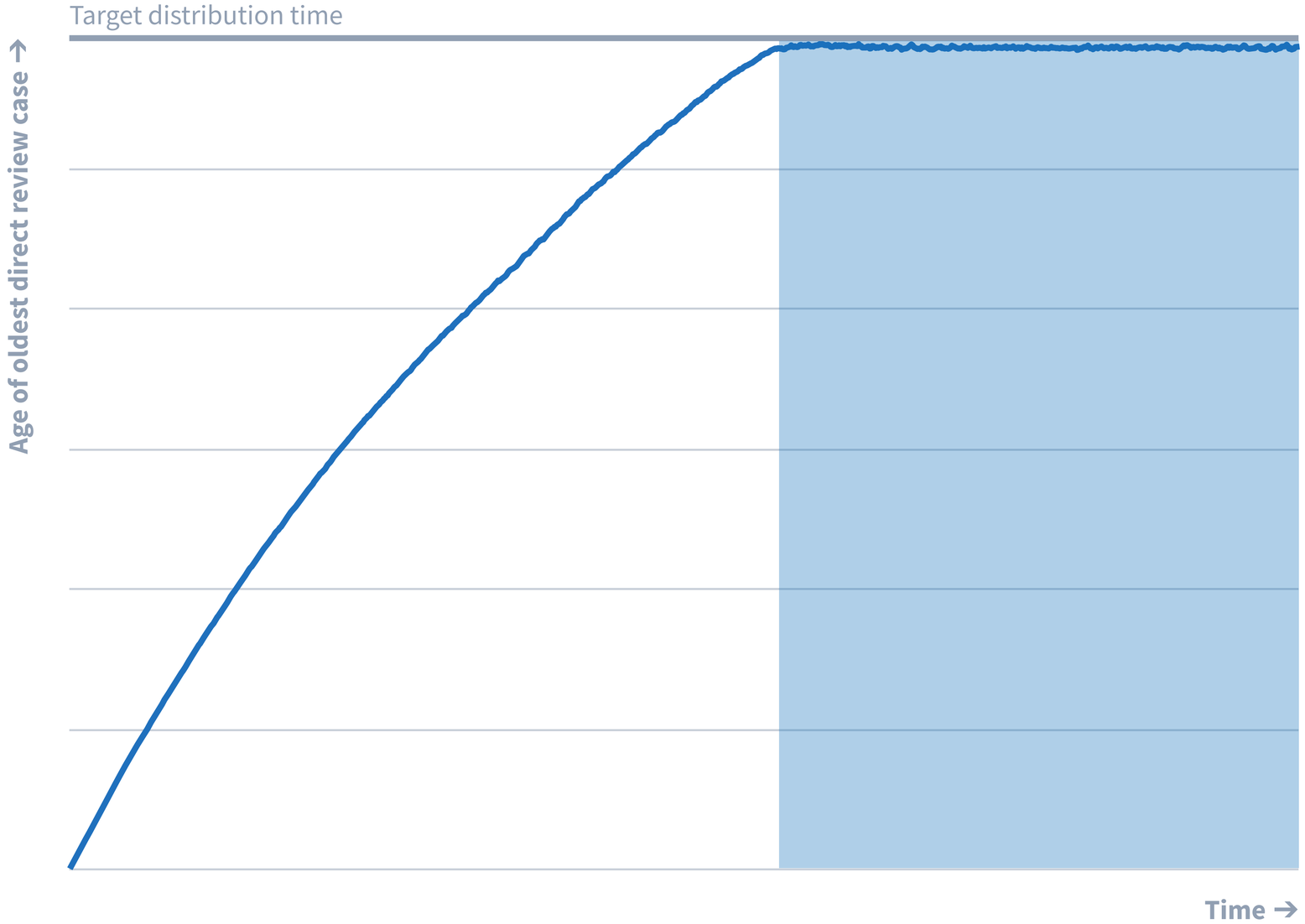


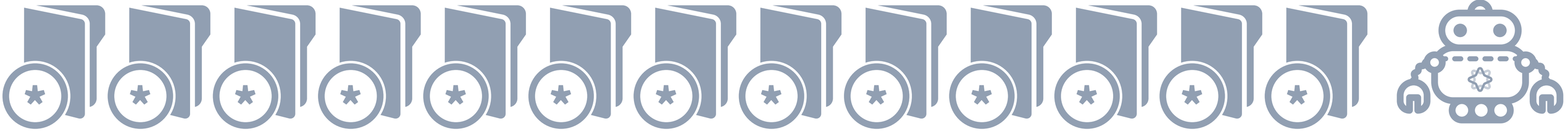
Let's start with this part of the graph, the steady state.

Target decision date

- When a direct review is docketed, we stamp it with a "target decision date," 365 days after the docket date.

- We can calculate a "distribution due date," the date the case should become eligible to be distributed in order to get a decision on the target decision date. This is 60 days before the target decision date.

- Note that we do this on a per-case basis in order to support adjusting the timeliness goal for direct reviews.



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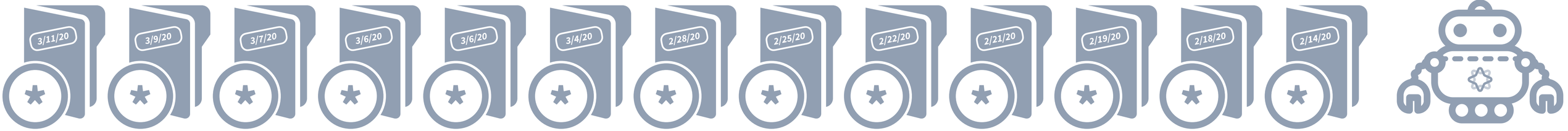
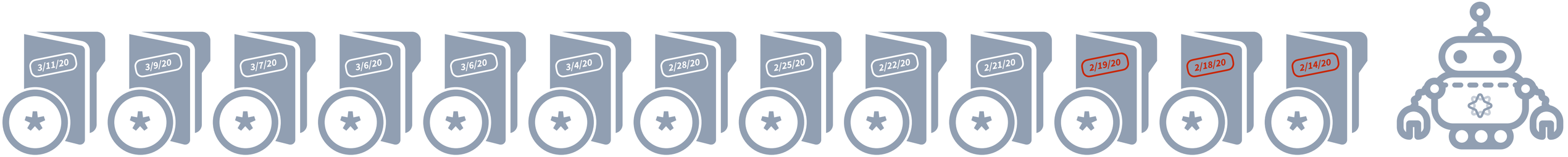


Due direct reviews

- We can then find those direct reviews that are due, that is their distribution due date is less than or equal to the current date.



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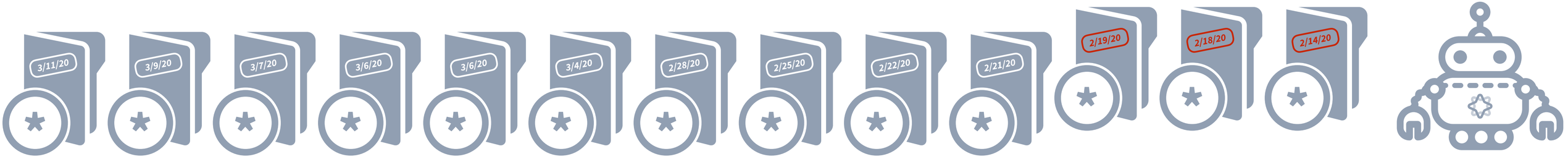

Direct review proportion

- Dividing the number of due direct reviews by the docket margin net of priority gives us the direct review proportion.

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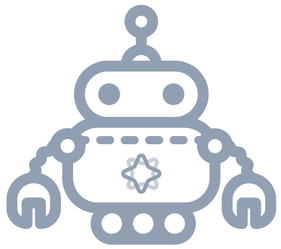
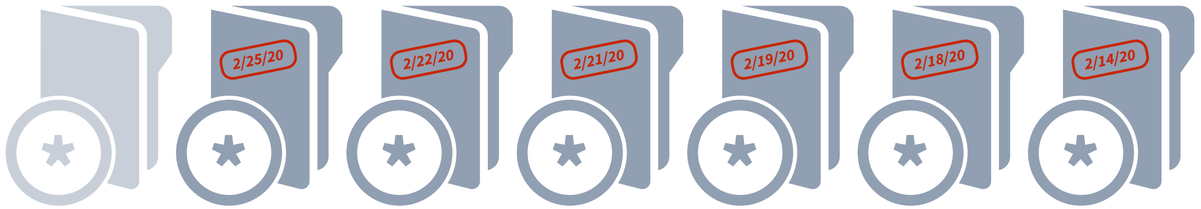
$$3/7 \cong 43\%$$

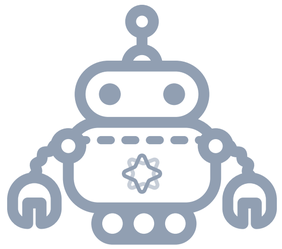


Direct review proportion

- This proportion is capped at 80%, meaning that no more than 80% of non-priority cases can come from the direct review docket.

6/7 ≅ 86%





Direct review proportion

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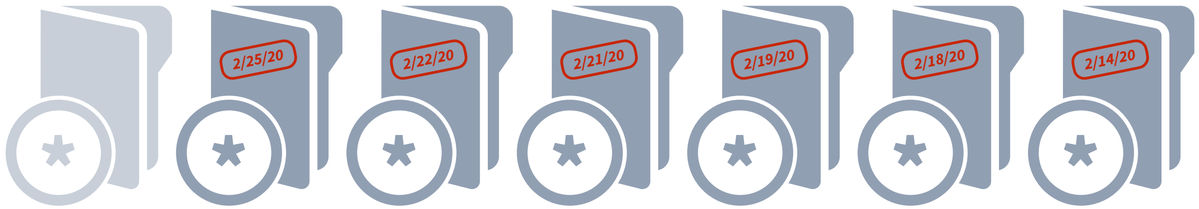
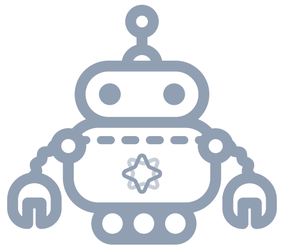
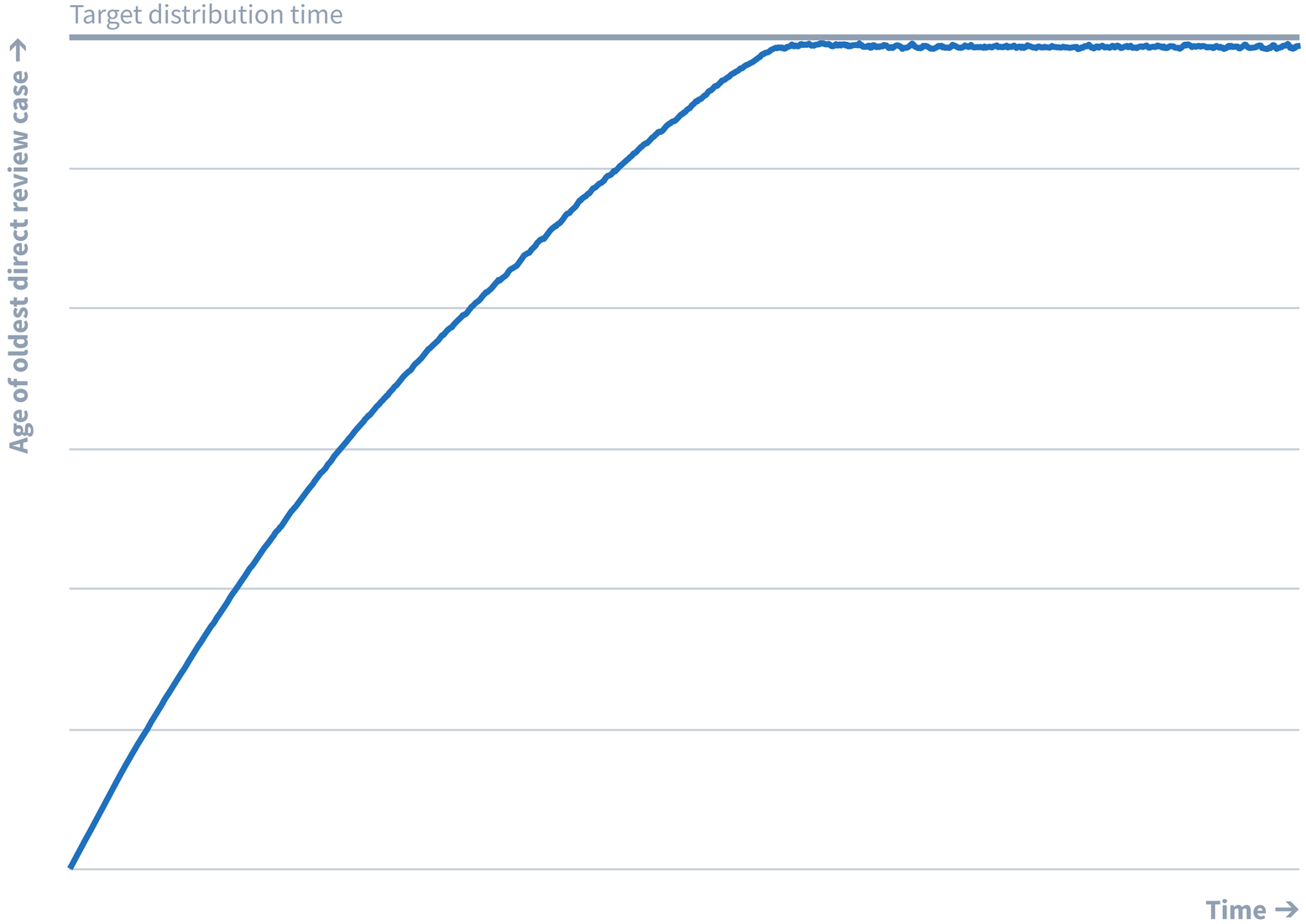




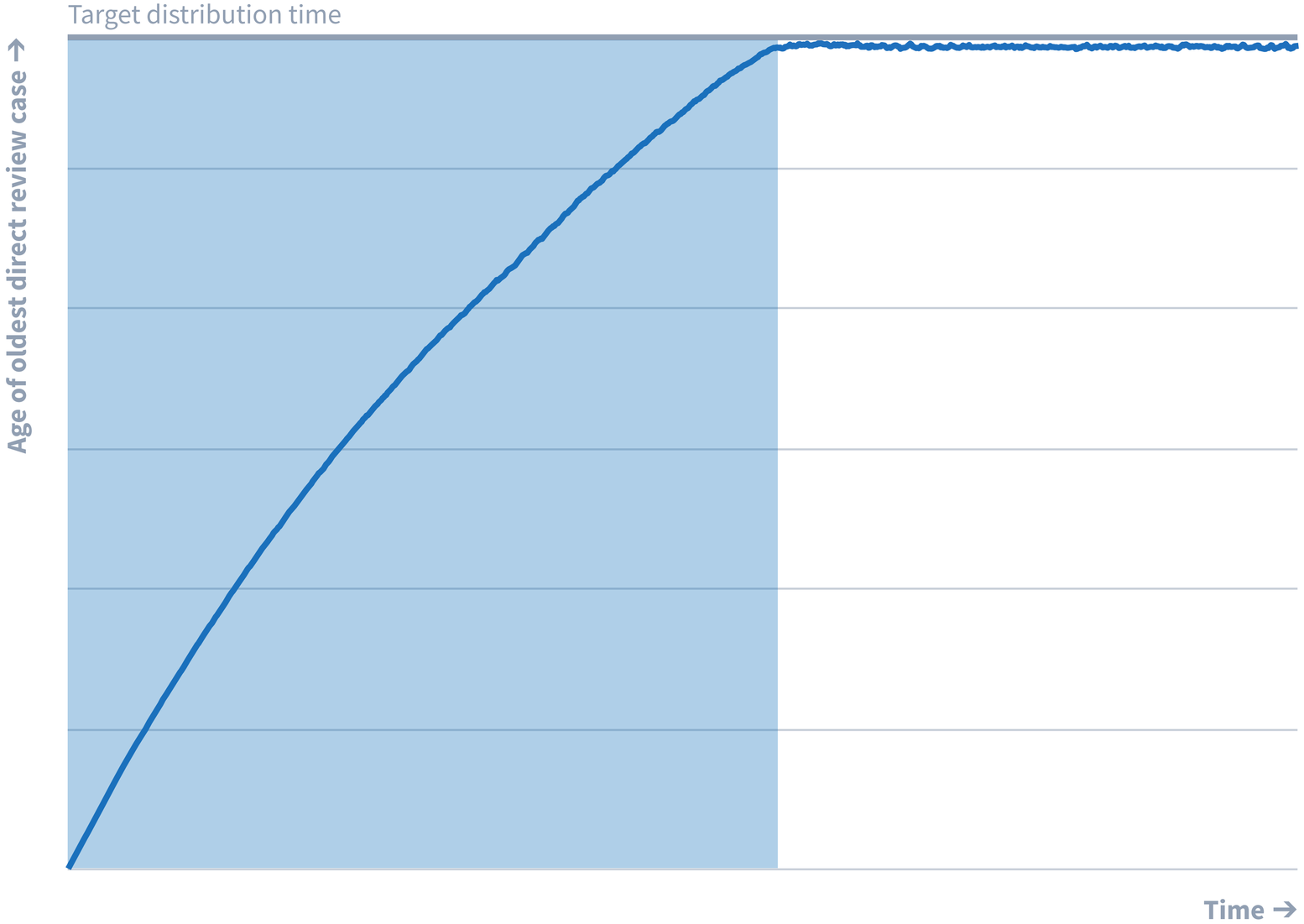
Ramping up



The curved part of the graph occurs when there are not yet any direct reviews due.

Let's explore this part of the graph next.

Ramping up



The curved part of the graph occurs when there are not yet any direct reviews due.

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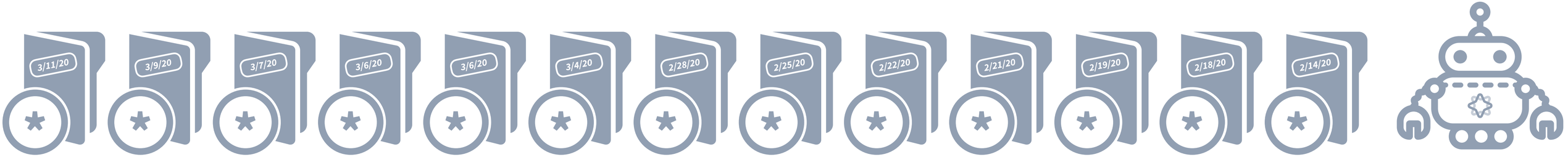
Pacesetting proportion

- Even without any direct reviews due, we can find a "pacesetting proportion." We start by finding the rate at which non-priority direct reviews arrive at the Board.



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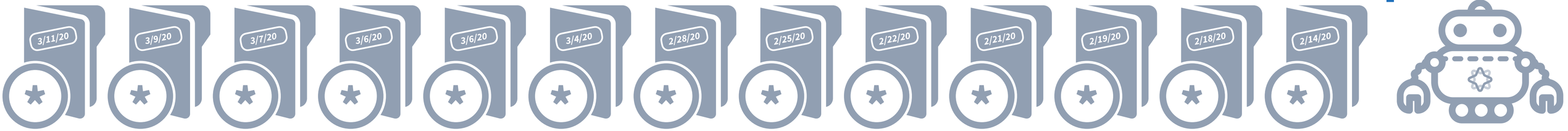
15 new direct reviews per month



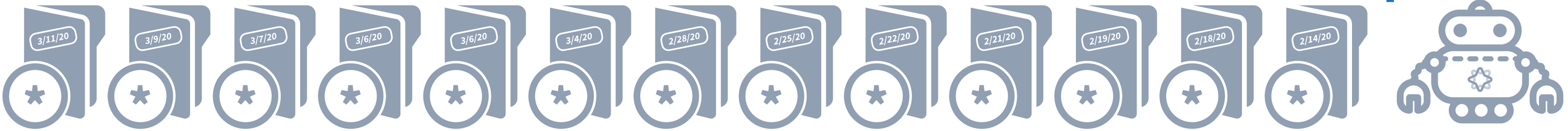
Pacesetting proportion

- We divide this by the number of non-priority decisions the Board produces in the same period to arrive at the pacesetting proportion.

$$\frac{15}{30} = 50\%$$

15 new direct reviews per month

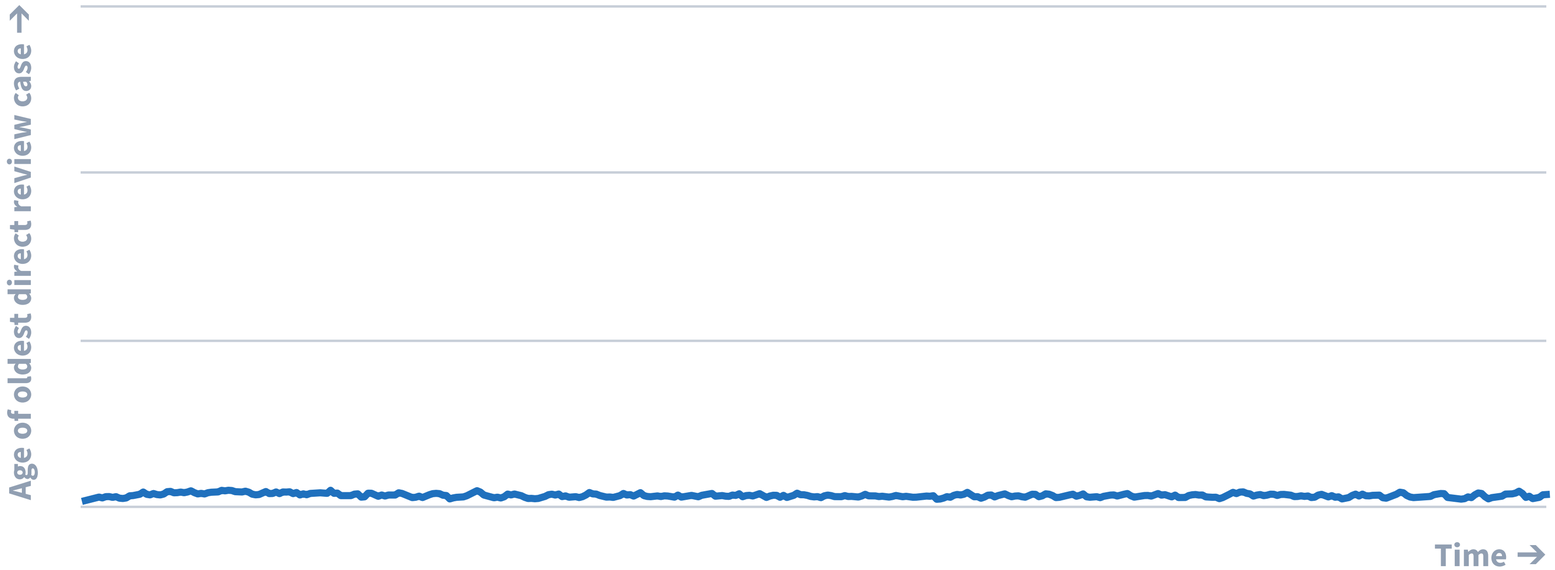
30 non-priority decisions per month



Interpolated direct review proportion

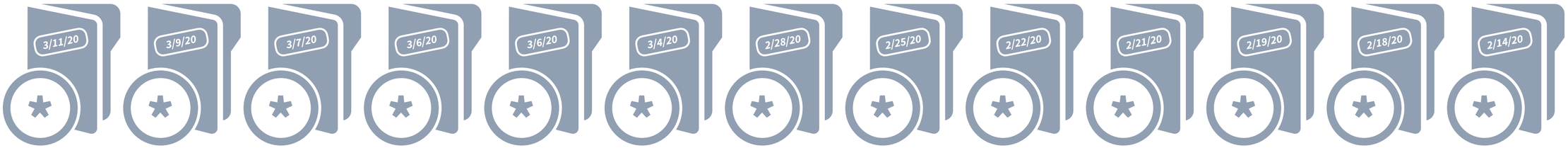
- If we were to distribute cases using the pacesetting proportion, the result would look like this graph.

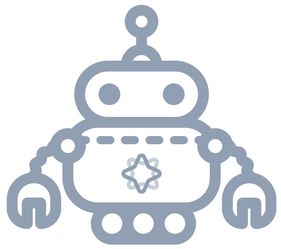
- Instead, we need to gradually build to this proportion over time.



Interpolated direct review proportion

- We look at the oldest target distribution date and subtract today's date.





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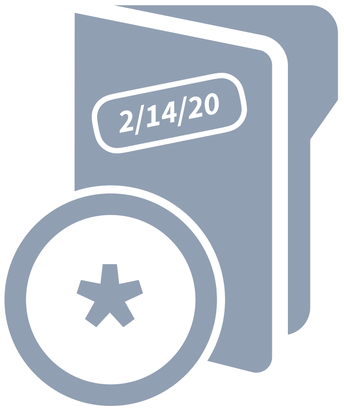

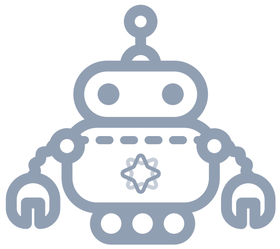

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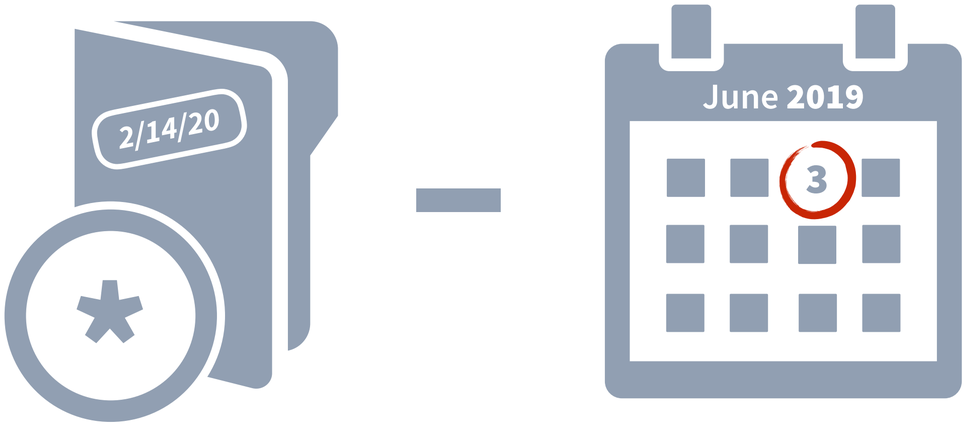

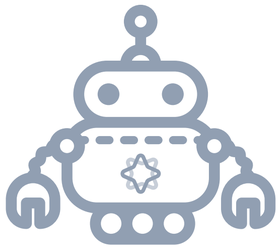

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Interpolated direct review proportion

- Then we divide by the time until a new direct review would become due.

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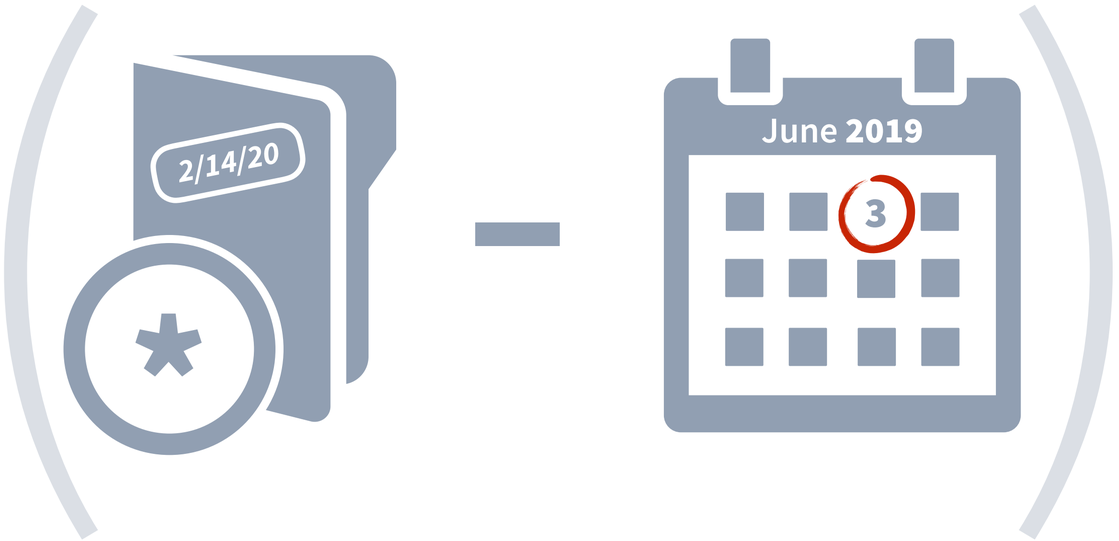
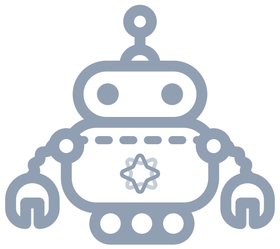
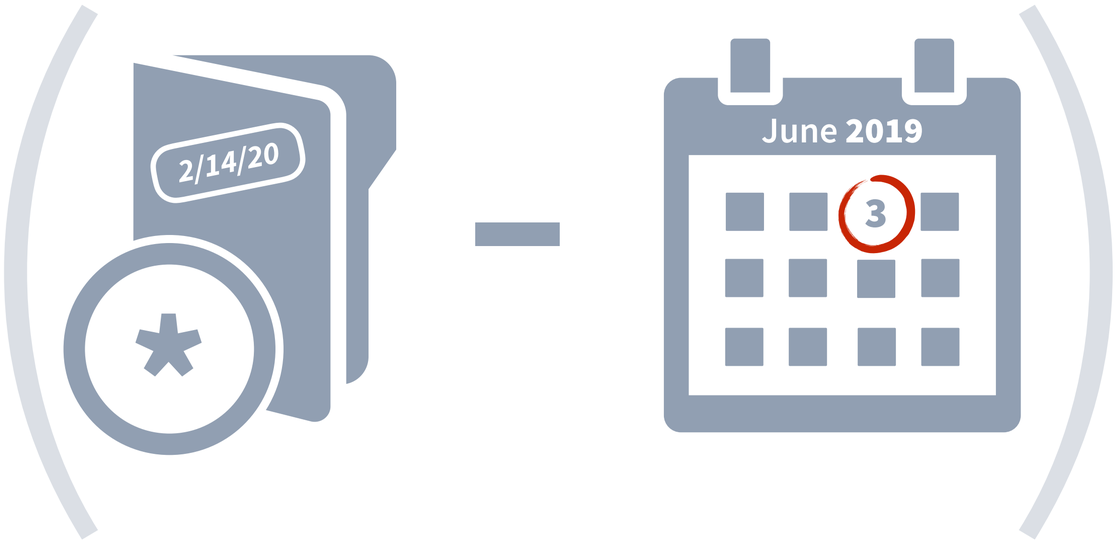


– / 320 = 0.8



Interpolated direct review proportion

- We obtain a figure that we use to interpolate the pacesetting proportion.



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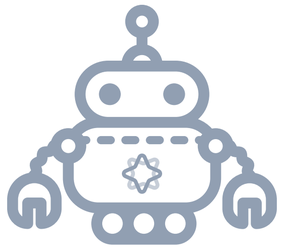
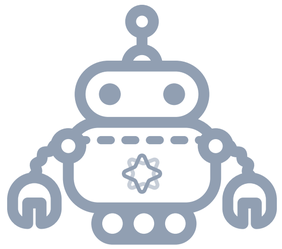


Interpolated direct review proportion

- We obtain a figure that we use to interpolate the pacesetting proportion.

$$(1 - 0.8) \times 50\% = 10\%$$



Interpolated direct review proportion

- As time passes, the interpolated proportion approaches the pacesetting proportion.

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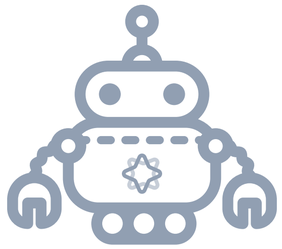
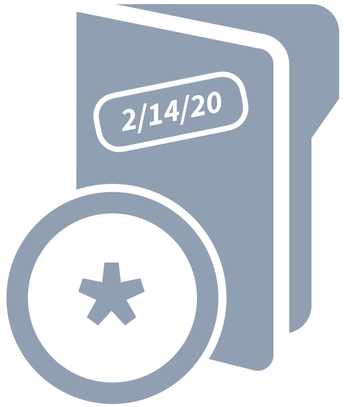
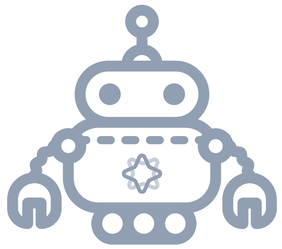


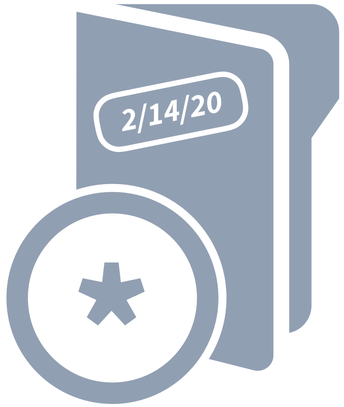


Interpolated direct review proportion

- As time passes, the interpolated proportion approaches the pacesetting proportion.

$$(1 - 0.6) \times 50\% = 20\%$$

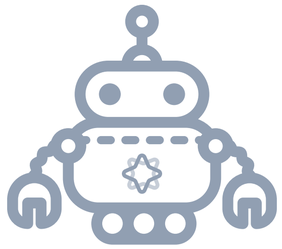


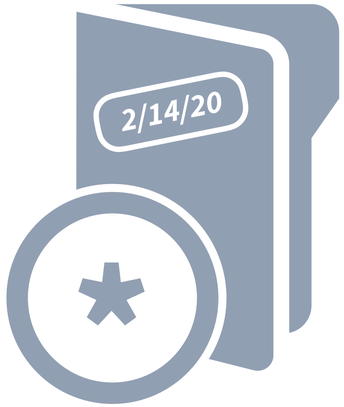


Interpolated direct review proportion

- As time passes, the interpolated proportion approaches the pacesetting proportion.

$$(1 - 0.4) \times 50\% = 30\%$$

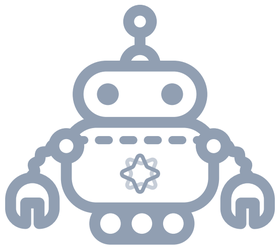


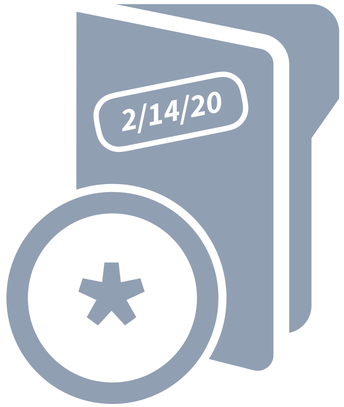


Interpolated direct review proportion

- As time passes, the interpolated proportion approaches the pacesetting proportion.

$$(1 - 0.2) \times 50\% = 40\%$$

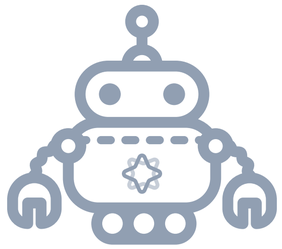


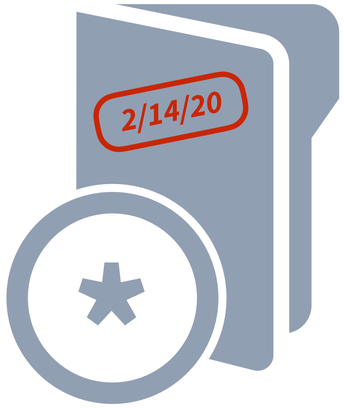


Interpolated direct review proportion

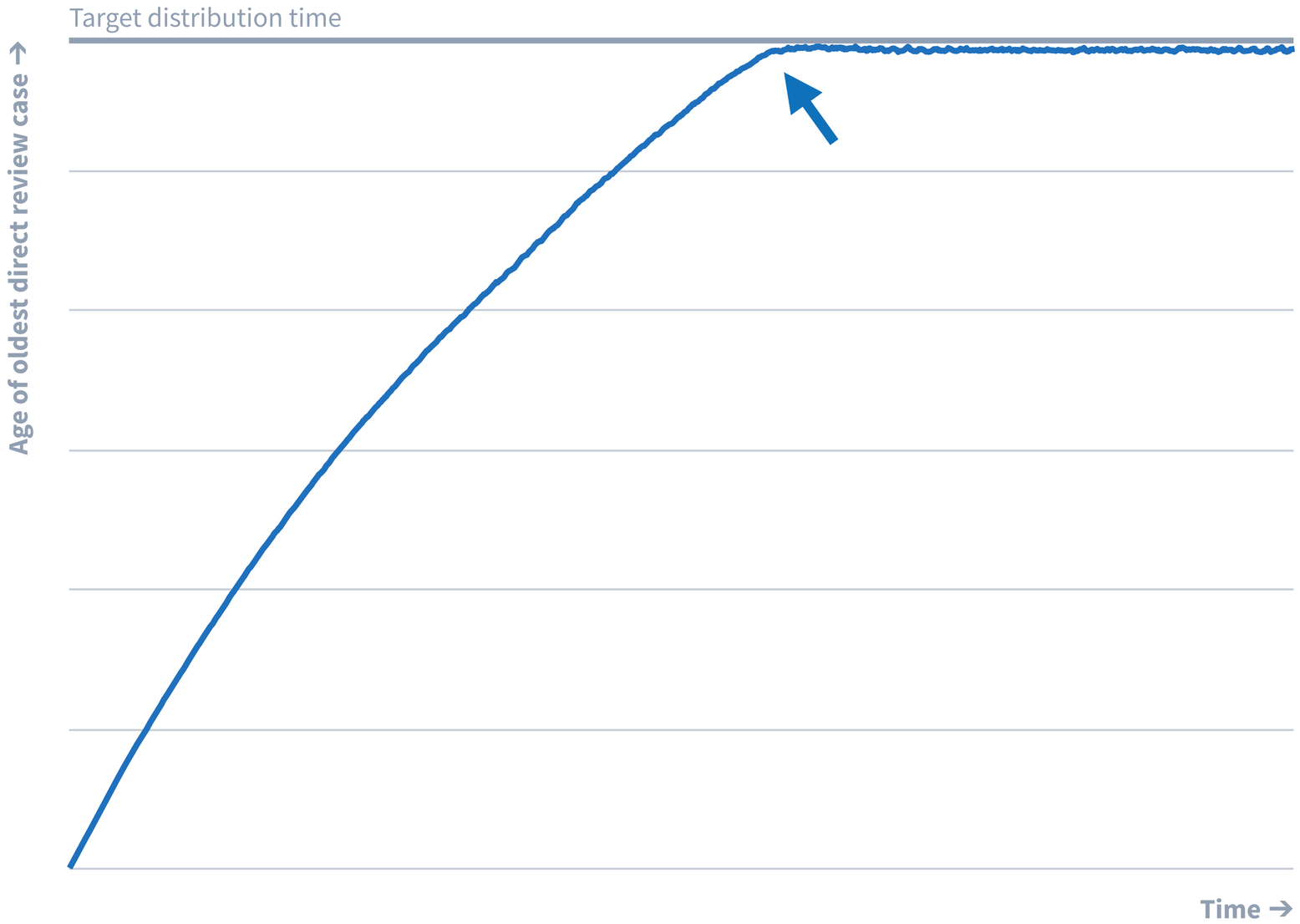
- Caseflow continues to use this calculation of the proportion until the number of due direct reviews exceeds it.

- Note that this example has held the age of the oldest case constant. As the oldest cases would simultaneously be getting worked, the system will take longer than the one year shown to reach steady state.





Interpolated direct review proportion



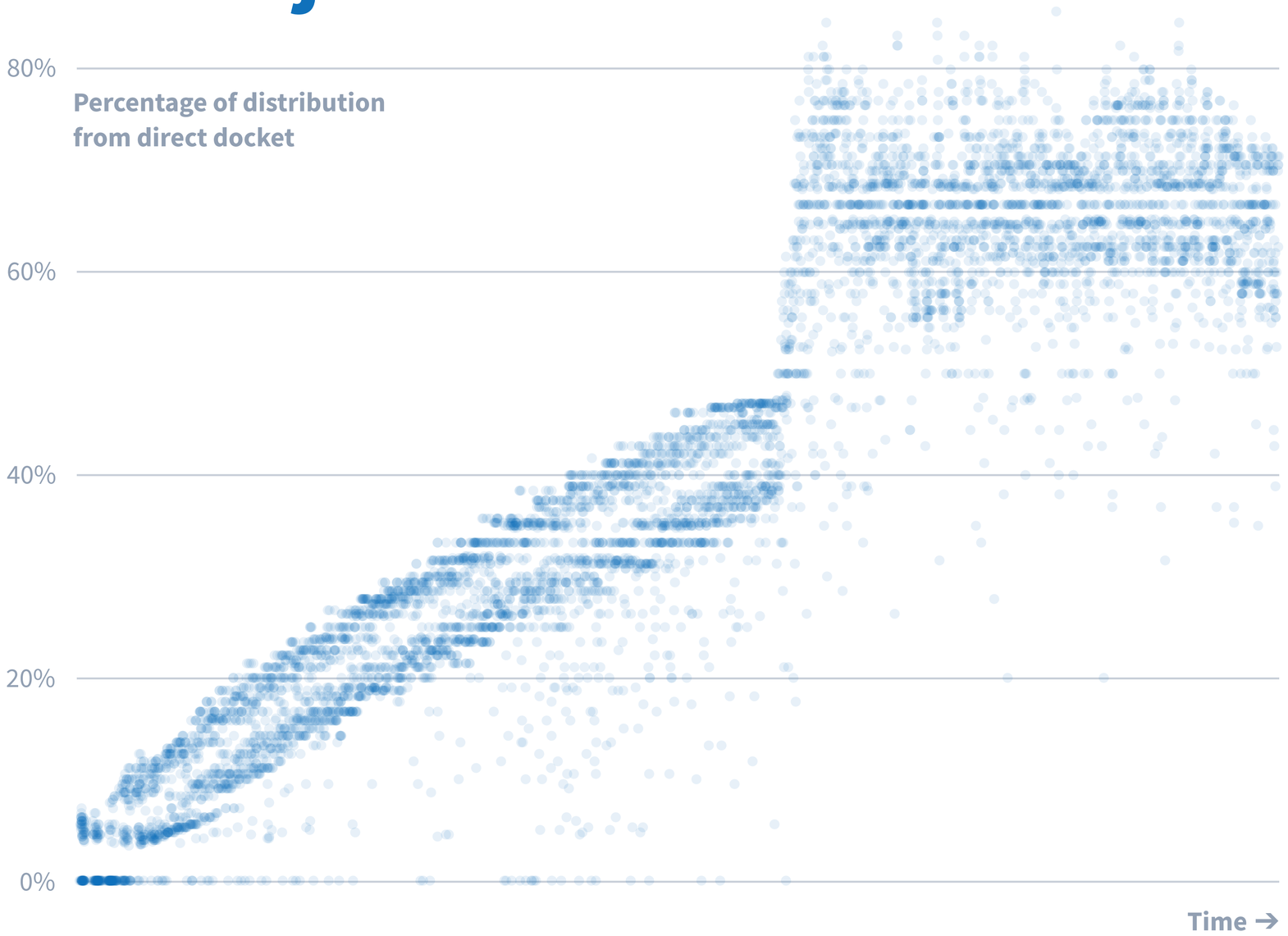
The illustrated curve has kink between the ramping up section and the steady state.

This is because we have adjusted the interpolated direct review proportion to accelerate the transition to the steady state.

Shown is an adjustment of 67%. This brings the time to steady state under two years, in a typical simulation.

This also increases the amount of production that can go to the legacy docket.

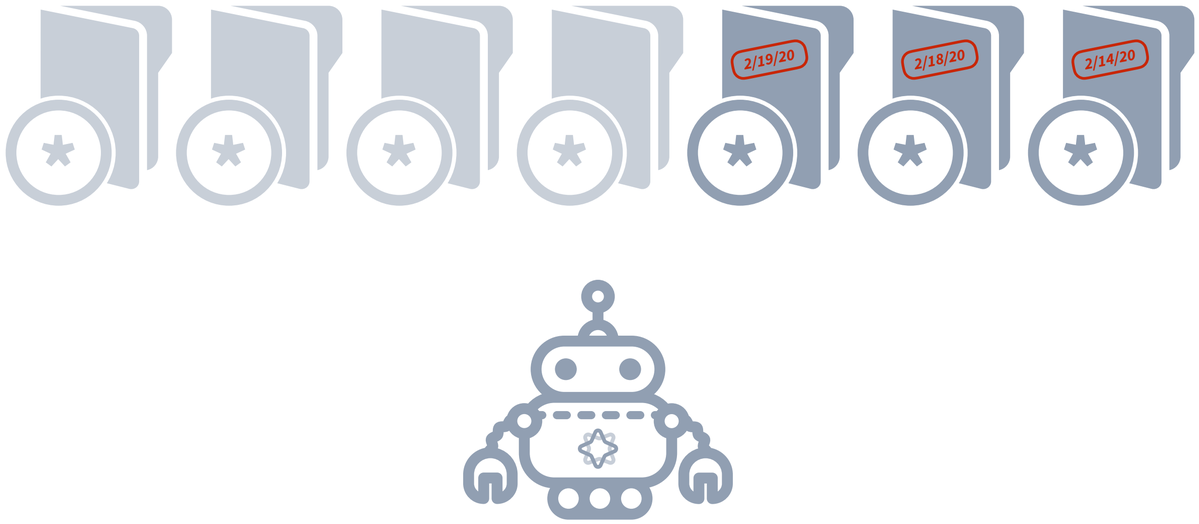
The "jolt"



However, this results in a sudden increase in direct docket production when the steady state is reached.

Other docket proportions

- Now that both the priority and direct review proportions have been deducted, we are must divide the remaining cases among the hearing, new evidence, and legacy dockets.



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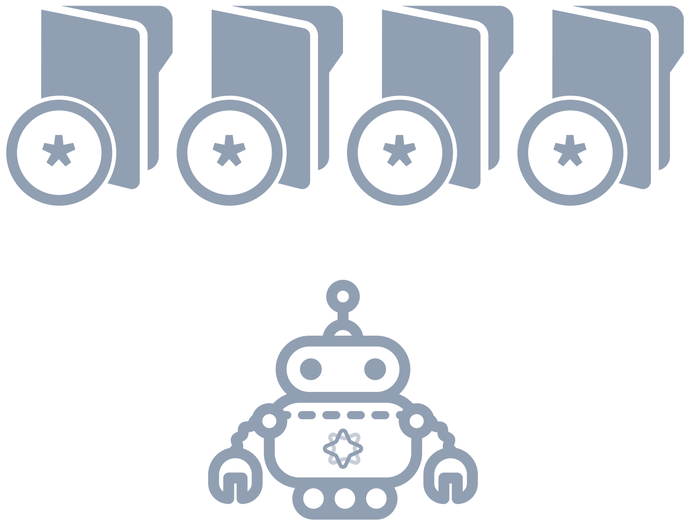

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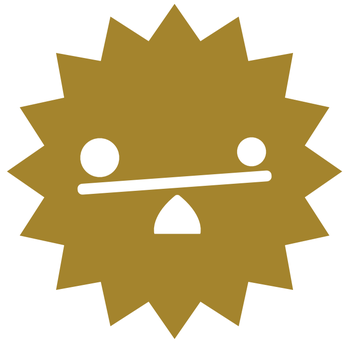


- We count the number of pending non-priority cases on each of the hearing, new evidence, and legacy dockets, and divide by the total number of non-priority cases on those dockets.

- These proportions are adjusted to account for the direct review proportion, so that they represent the target percentage of the non-priority cases of a distribution that should come from each docket.

- Note that we include cases in these counts regardless of whether they are ready to be distributed or not.

Legacy docket

- The number of legacy cases is adjusted to include pre-Form 9 cases, discounted to 40%. This reflects the rate at which those cases will reach the Form 9 stage.

- A minimum of 10% of non-priority cases (denominator inclusive of direct reviews) must come from the legacy docket, provided there are at least that many available.

Hearing docket

- Hearing cases are distributed to judges as soon as they are ready, generally after the hearing has occurred, been transcribed, and the evidentiary period has expired or been waived.

- As a result, the throttling factor is not when the case is distributed, but rather when and how many AMA hearings are held.

Hearing scheduling

- Caseflow Hearing Schedule will ask Caseflow Queue for the number of AMA hearings to be held during a given period.

Hearing scheduling

- Queue's answer is the hearing docket proportion, multiplied by the expected number of non-priority decisions expected in the period.

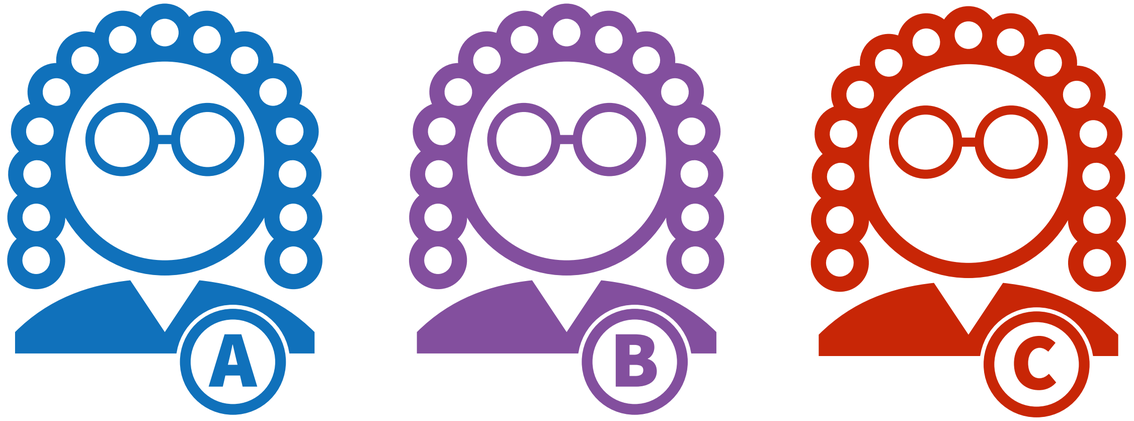
- Note that this does not include priority hearings, which are scheduled immediately.

Hearing docket

- As soon as a case on the hearing docket is ready, it will be distributed.

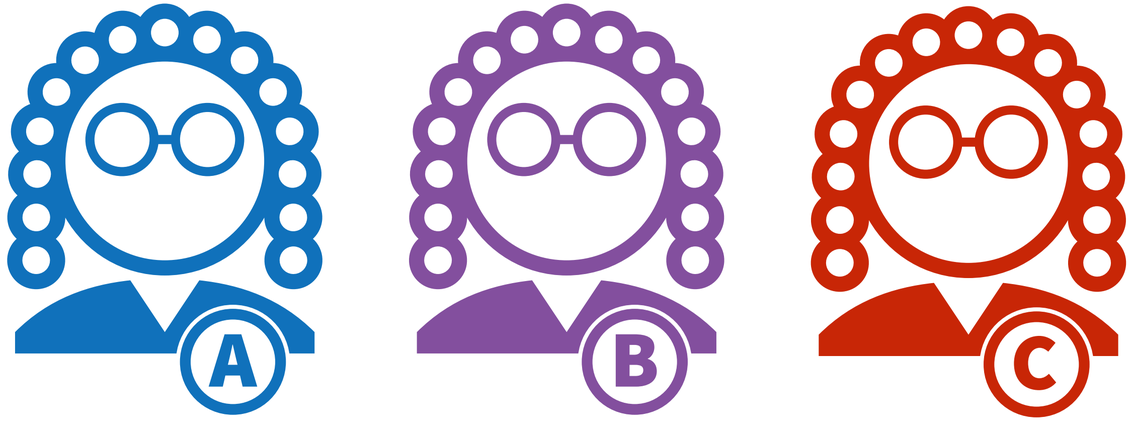
- This addresses one-touch hearings under AMA. If the Veteran waives the 90-day evidentiary period, the case will be distributed immediately following transcription.

AMA hearing cases are not tied to judges



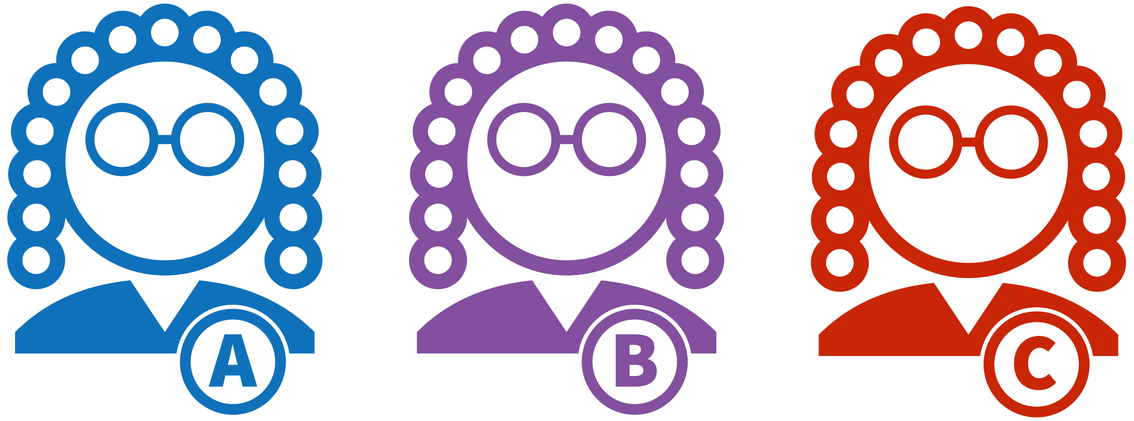
AMA hearing cases do have affinity

- This means that if the judge is available, the case will be distributed to them so they can decide the case they heard.



But if the judge is unavailable…

- …the case is treated like genpop.



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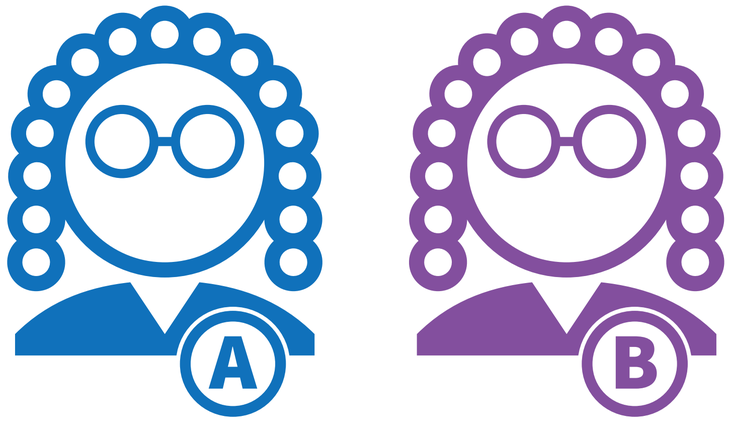


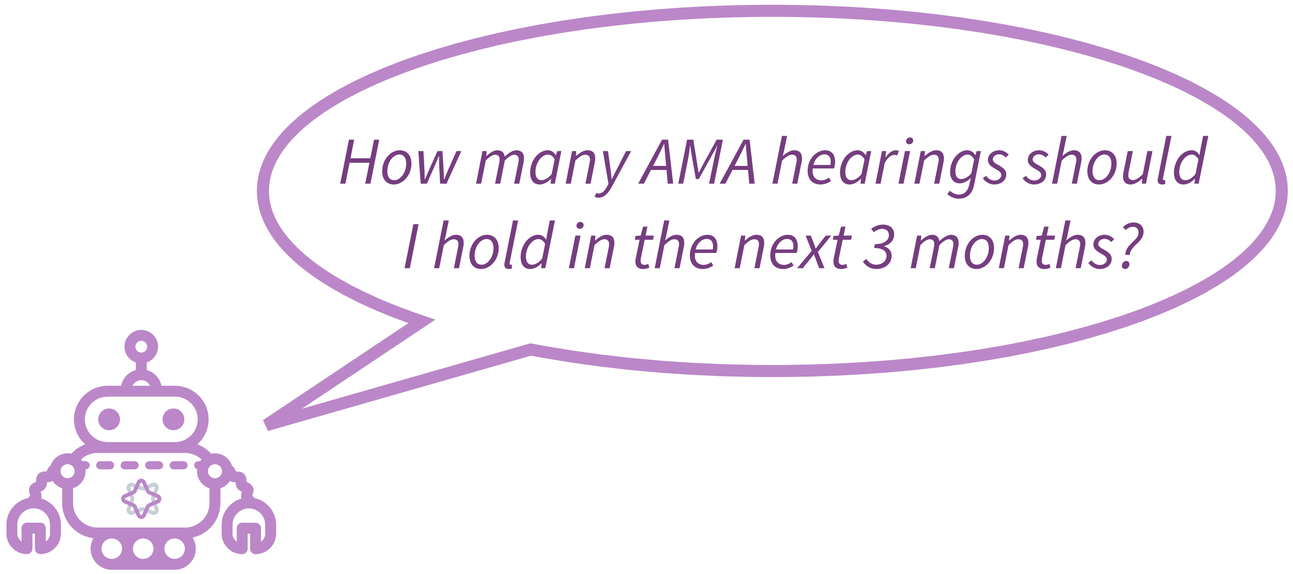
Withdrawn requests

- A Veteran can withdraw their hearing request. This does not change the docket of their case.

- As cases on the hearing docket are distributed to judges as soon as they are ready, withdrawing a hearing request cannot immediately mark a case as being ready.

Withdrawn requests

- Instead, cases become ready as part of the hearing scheduling process.



Withdrawn requests

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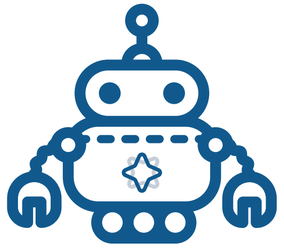
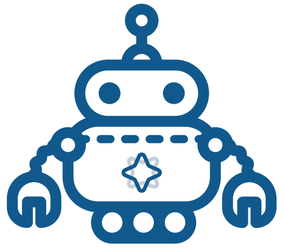


Withdrawn requests

- When Caseflow finds a withdrawn hearing request, it marks it as ready for distribution, and subtracts it from the number of hearings that need to be scheduled.



Withdrawn requests

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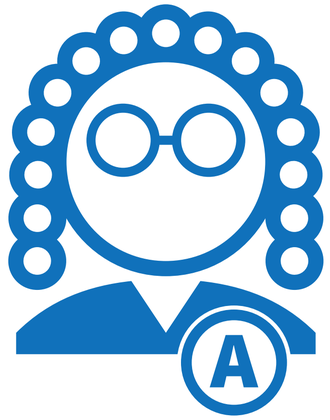
Distribution

- We now have all the information we need to distribute cases to a judge.

- First, we translate the docket proportions into targets. The priority target is determined in the same way as legacy.

total cases remaining

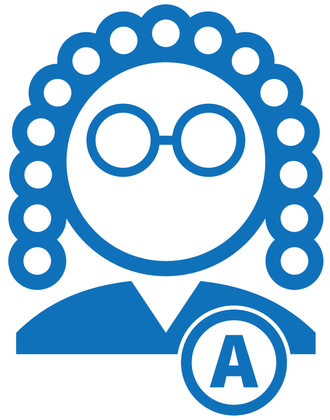
Non-priority targets



- Once we set aside three slots for the priority target, we will have only three slots remaining, but we have more dockets. We will solve this problem using stochastic rounding.

total cases remaining

Stochastic rounding



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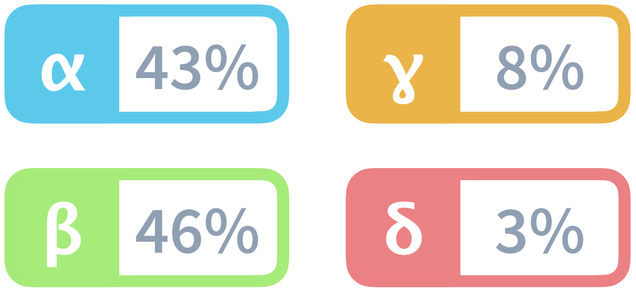

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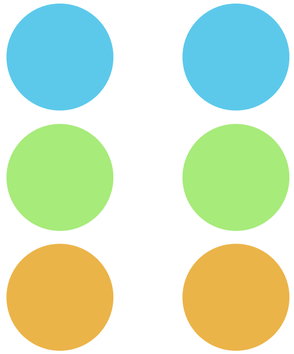

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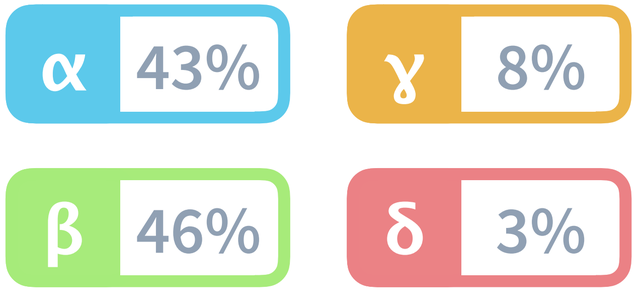

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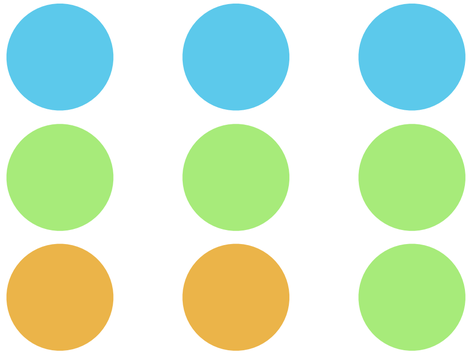

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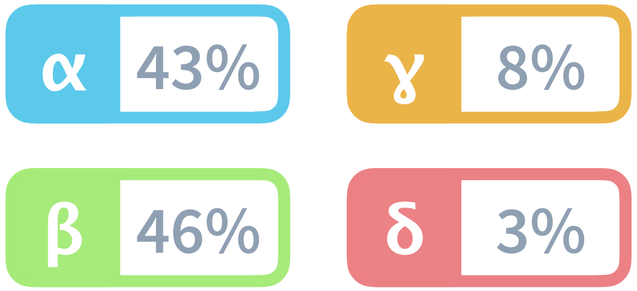

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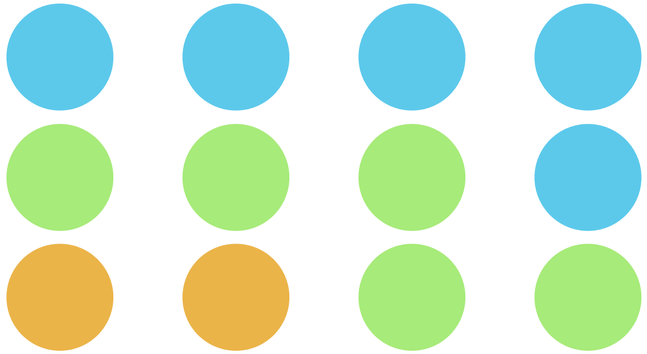

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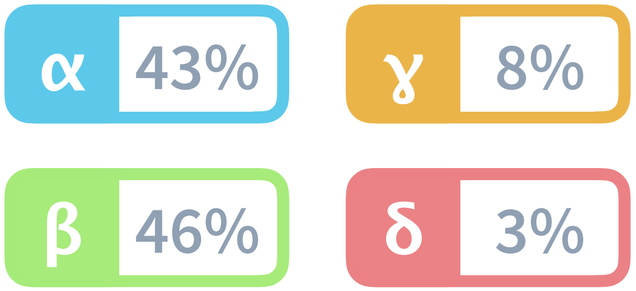

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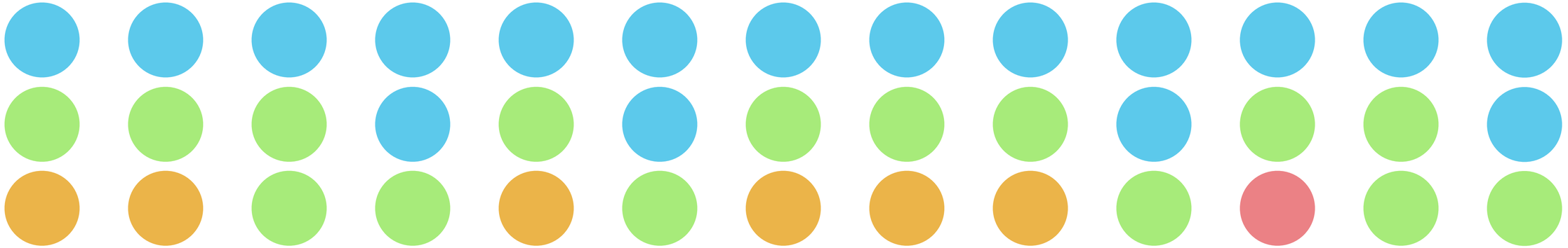


total cases remaining

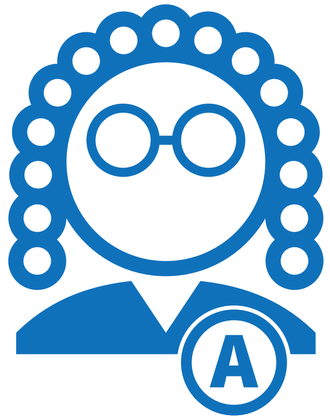
α 43%

γ 8%

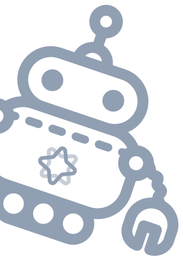
β 46%

δ 3%

Order of operations



- We start by distributing priority legacy hearing cases, then priority hearing docket cases (with affinity for the judge).
- Next we assign non-priority legacy hearing cases from legacy and then from the hearing docket (cases with affinity for the judge).
- If the judge's priority target has not been met, we will next distribute genpop priority cases from any docket, using a first-in-first-out ordering.



Optimization alert!

- For performance reasons, we don't request the oldest priority case from each docket one by one. Instead, we ask each docket for the age of its *n* oldest cases, where *n* is the number of priority cases remaining.

priority cases remaining

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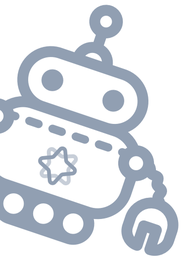
2 priority cases remaining

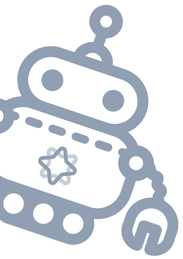


Optimization alert!

- We then order the cases from oldest to youngest, and request cases from the dockets that own the *n* oldest cases.

5 5 6 7 7 8 9 11

2 priority cases remaining



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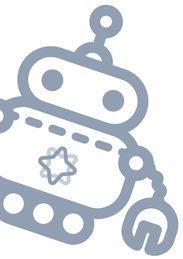
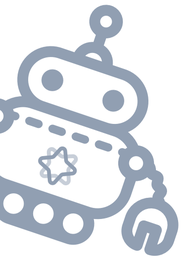


Optimization alert!

- However, it is possible that another judge was requesting a distribution at the same time, and beat us to one of those cases. In that case, we might retrieve a case that is not strictly the oldest.

priority cases remaining



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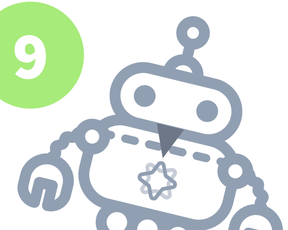
2 priority cases remaining

9



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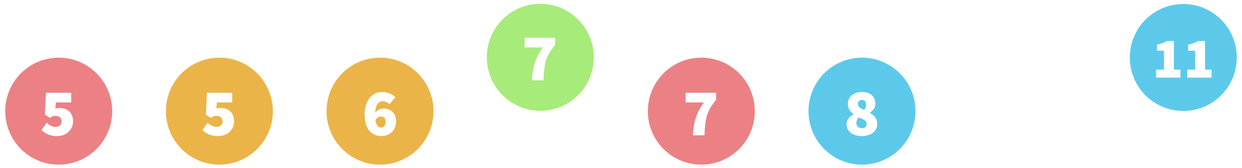

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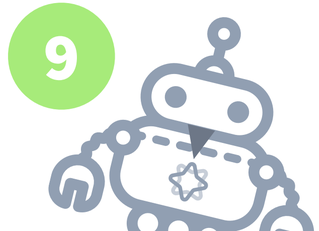


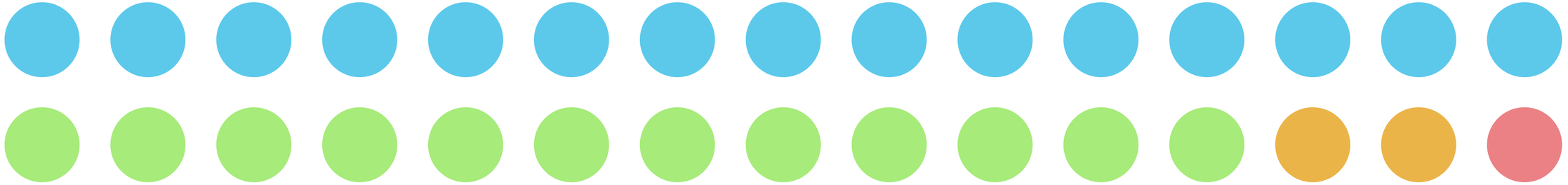
Order of operations

- Given that some legacy and hearing docket cases have been distributed, we deduct those cases from the docket proportions and run the stochastic rounding calculation.

- We then attempt to distributed the specified number of cases from each docket. If a docket doesn't have enough ready cases, we reallocate its cases to the other dockets.

Reallocating to dockets with ready cases

- Although docket α is supposed to receive 15 cases, there are only 5 ready.



30 cases remaining

α 50%

ɣ 5%

β 40%

δ 5%

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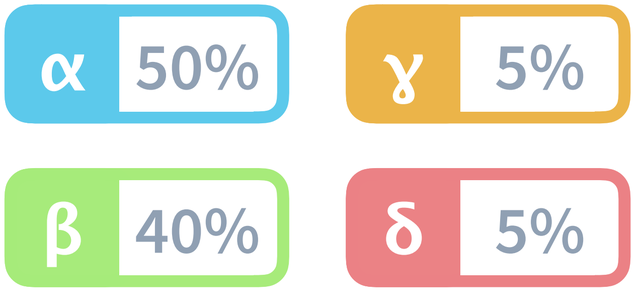

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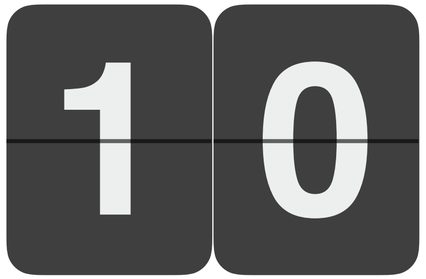
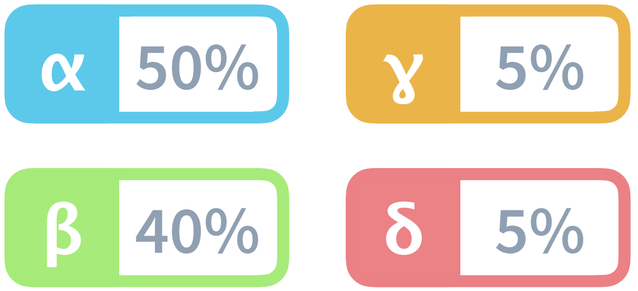


cases remaining



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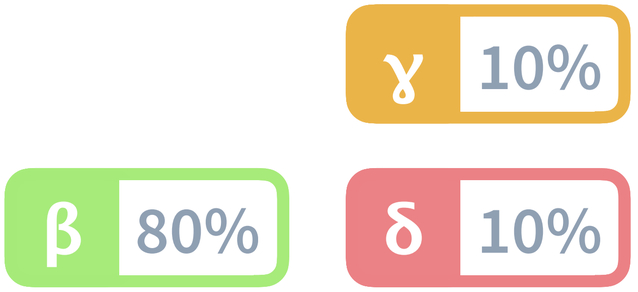

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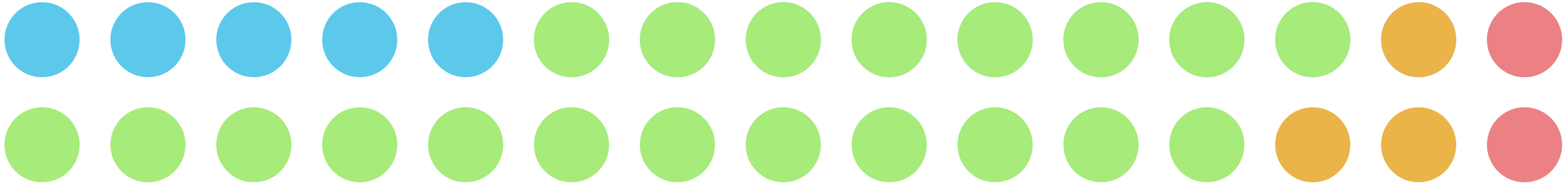

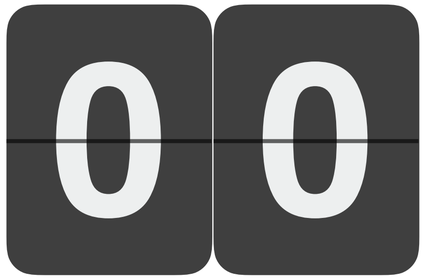

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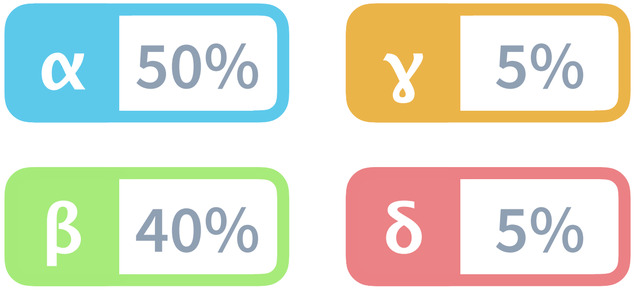

Things to know

Levers

- Batch size per attorney (5 cases)
- Direct docket time goal (365 days)
- Direct review distribution due date (-60 days)
- Maximum direct review proportion (80%)
- Interpolated direct review proportion adjustment (67%)
- Minimum legacy docket proportion (10%)

AOD cases increase after effective date

- In the short term, the rate at which legacy AOD cases arrive is unchanged, while additional AOD cases simultaneously start to arrive through AMA.

- Note that this decreases the percentage of production that can go toward goals for non-priority cases like working direct review timeliness or completing legacy cases.

An early warning system for direct reviews

- The pacesetting proportion can be used as an early warning system if Board production is not sufficient to meet the timeliness goals of direct reviews. If that proportion persistently exceeds 80%, we will know that the current goal is not sustainable.

- Gradually ramping up direct review production provides a limited buffer.

- Caseflow is designed to allow the direct review timeliness goal to be adjusted seamlessly, attempting to continue to work Veterans' cases under the timeliness goal that existed when their case was docketed and using the revised goal for new cases.

Some images courtesy of the Noun Project

"Judge" created by Martin Vanco

"Folder" created by Dinosoft Labs

"Robot" created by Maxim Kulikov